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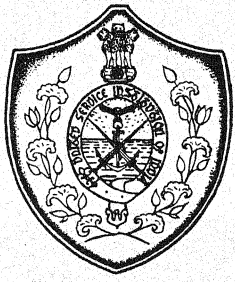

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UNITED SERVICE INSTITUTION OF INDIA

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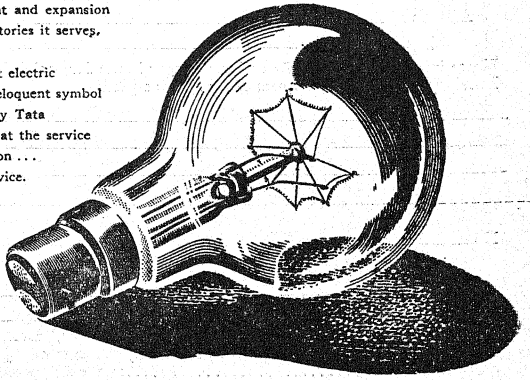

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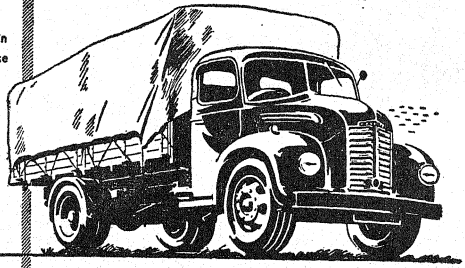

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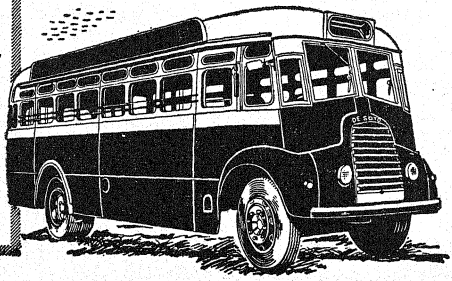

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The Journal of the United Service Institution of India

Vol. LXXXV JULY-SEPTEMBER 1955 360

EDITORIAL NOTES

The Geneva Conferences

Not since the summer of 1945 has such a surge of optimism been felt around the world as was evident after the two recent conferences held at Geneva—the "Summit" Conference of the Heads of Governments of the Big Four; and the International Conference on Peaceful Uses of Atomic Energy, which brought together 1,200 scientists from 72 nations (and at which, incidentally, an Indian was elected President). The Summit Conference gave the world fresh hopes of a future free from the horrors of nuclear war; the "atoms-for-peace" gathering foretold an era of medical and commercial development in which the atom would play the part of a new Philosopher's Stone, bringing untold wealth to nations—medical and commercial—if only they would contribute all their available knowledge into a common pool.

During the last ten years of cold war and atomic stockpiling, all scientific information regarding the developments and characteristics of nuclear energy have been kept as well-

guarded secrets by the various nations engaged in atomic research. The military potential of the atom was the only aspect of this new phenomenon which concerned the Big Powers. It was not until December 1953 that General Eisenhower, President of the United States, first proposed the setting up of an international body to share atomic materials and knowledge. In an address to the General Assembly of the United Nations, he said that atomic knowledge must not only be taken out of the hands of militarists, but also given to those "who will know how to strip it of its military casing and adapt it to the arts of peace. The U.S. knows that if the fearful trend of atomic military build-up can be reversed, this greatest of destructive forces can be developed into a great boon for the development of all mankind."

It was a year later that the General Assembly voted unanimously to hold the atoms-for-peace conference. It was the first time that the East and the West agreed on any atomic proposal, and this new spirit of co-operation resulted in the scientists' conference in Geneva.

If the same international spirit of co-operation is carried a stage further, some concrete agreement regarding the prohibition of nuclear weapons of war might well be the result.

Careers in the Services

The post-war decline in popularity of careers in the three services is no new phenomenon. Both in Britain and in the United States it has been the experience after World Wars I and II that the immediate years of peace bring a revulsion of popular feeling against a career in the Fighting Services. Steps have recently been taken in these countries to find out the underlying reasons, and to attempt to bring back the pre-war popularity of service careers.

In India, the problem is a comparatively new one and is restricted to the officer cadre, there being no dearth of

recruits for the enlisted ranks. Before the war, commissions in the armed forces were more or less regarded as the prerogative of certain privileged classes. It was only during 1939-45 that the gates of the Officers' Training Schools were thrown open to the whole country. After the war, the fields of recruitment were even further enlarged, to include all ranks and strata of Indian society.

That there is a certain insecurity in the career aspect of the commissioned ranks has long been recognised. It is not merely a question of pay and allowances, which though on the stringent side are after all not entirely out of keeping with the general economic condition of the country. There are however other aspects also, such as comparison with the civilian services, the very early ages of retirement, avoidable difficulties and expenditures regarding children's education, and like problems. These require investigation and sympathetic consideration. The Army has taken a lead in this respect by setting up a high-powered Career Committee, under the Chairmanship of an Army Commander, to look into this aspect of security of career in the army. It is understood that the other two services have also associated themselves with this committee, and have envisaged similar action.

Two copies are required of all articles sent to the Editor. These should be typewritten with double-spacing, and on one side of the paper.

WEAPONS AND EQUIPMENT FOR EASTERN THEATRES*

MAJOR-GENERAL J.N. CHAUDHURI, O.B.E.

THIS is the second time that I have been asked to a convention of Defence Scientists and I must admit at the outset that I am very flattered and a little over-whelmed at the invitation. At first I was hesitant of accepting but then I thought to myself that in all matters of defence equipment, defence research or defence development it was always essential to form a team comprising the scientists, the development technician, the manufacturer and the user, all of whom had to work together most closely. In this closely knit team the user was by no means the least part and therefore in this capacity, there was some justification for me to speak. I would like to put before you certain personal views regarding the problems facing and types of equipment that may be required by the army of a semi-developed industrial country fighting in an Eastern theatre. In order to avoid any misunderstanding I wish to emphasise that these views are my own and are not official in any way. In this respect I am rather like the novelist who says that his characters bear no relationship to anyone living or dead.

The countries to which I refer are the independent, semi-industrialised countries many of whom have come into being since the second world war; countries which have now got to solve their own defence problems instead of leaving them to a colonial power. Curiously enough, I feel that such a country, in planning its army and the defence industry to back it, has perhaps a certain number of advantages over the highly industrialised democracies or dictatorships with their wide political problems and consequently equally wide military commitments. This is an aspect which is sometimes missed by those military enthusiasts whose main idea of military planning is sedulously to demand every new development from the West for inclusion in their own organisation and thus drive their Financial authorities into a frenzy in finding the funds to pay for it as well as bewilder their Generals as to how to use it satisfactorily once it is obtained. I do not imply, however, that trends in foreign development are to be

* Address by the Chief of the General Staff to the Symposium on Operational Research held in Delhi on 29 December 1954.

ignored. Quite the contrary in fact, I feel that they must be closely watched and those developments, which are useful and practicable according to the particular needs of an army must be introduced. Incidentally, this scrutiny cannot be carried out at long range and selected experts must be allowed to visit foreign countries. These needs must be based on a long term plan which must take into account strategical necessity, the tactical plan, the financial cost, the possibilities for indigenous development and, if incapable of indigenous development, the availability in time of war. This long term plan must, however, be flexible enough to accept modification and alteration to accommodate a particularly useful or appropriate new development. Purely from the scientist's point of view, it would seem to me rather a waste of time if much energy was expended in recapitulating what others have already developed. The efforts should be in adapting it to local conditions and improving on it for local use.

Problems of Semi-Developed Countries

At this stage perhaps I should clarify how I see a semi-developed country purely from the military point of view. Firstly, if it is not dependent on the continued charity of others which can only be a highly demoralising process, the amount of money available for military equipment can only be limited. Planning must, therefore, be for essentials and must ruthlessly cut out frills and luxuries. Any equipment to be purchased from abroad must be vital and the rate of availability and stock-pile holdings must be carefully calculated. To obtain this equipment it may be necessary to take severe financial cuts in other branches of the army and the budget must be carefully planned. While Government must have the ultimate say in how the money is to be spent, their advisors in regard to equipment must be the Chiefs of Staff on whom will fall the ultimate responsibility of fighting that equipment. In this matter the tendency of Finance to usurp the place of the General Staff, a tendency which appears prevalent in more countries than one, is to be deprecated.

Secondly, a semi-developed country is short of technical manpower and both in time of war and peace there will be big demands on the small pool available. Consequently, until such time as this deficiency is rectified, defence equipment must of necessity be simple of maintenance and repair. The highest grade equipment is only useful as long as it is working. Thirdly, and perhaps the most important, as much equipment as possible must be indigenously produced. In war it is obviously better to

have a functioning bow and arrow than an atomic gun without the mighty atom. The planning of such indigenous defence production is probably the most difficult and most expensive item that will face a semi-developed independent country and a broad view of this matter must be taken, if not only rapid progress but any progress is to be made. Investments here may not show immediate dividends but they will certainly more than pay for themselves later. I have made a reference to bows and arrows to emphasise a point and I hope no one here has taken the actual equipment as seriously needing development. The currency of equipment must never be debased but must be put on the steel standard as quickly as possible.

Fourthly, in a semi-developed country and one which has perhaps been under colonial rule for a long time, I feel it is essential to educate as large a section of the public as possible in the problems of defence. War is no longer the sole prerogative of the politician and the soldier. It is, as has been amply demonstrated, the concern of the nation as a whole. As a corollary to this, I further consider that in peace it is important to get all branches of the administrative machinery thinking together of the problems of war and here I put forward a personal plea for the founding of an institution like the Imperial Defence College in the UK or the War College in the USA in our own country.

Finally, it is obviously necessary for a Government to lay down quite clearly their broad basic policy with regard to defence. While some part of this must be given as openly as possible, it may often be necessary to brief the Chiefs of Staff on some of the more confidential aspects. An army trying to plan without a clear cut and workable governmental directive cannot plan either accurately or economically. With regard to the actual planners themselves, I am sure they must formulate their tactics, organisation and equipment on the basis of the particular problem they have to solve and not imitate slavishly the ideas on organisation of any other country. For each nation the problems involved are quite different, though the planners must not ignore the experience of others but must use that experience as a guide and stepping stone in the solution of their own problems.

Though there are a number of other problems from the governmental point of view that affect the military development of a country, I have mentioned what I consider are the five most important ones. I would like to turn now to ground which is a little more familiar to me and

to put forward to you certain views regarding the tactical problems one meets in semi-developed countries and how these problems affect equipment and organisation. Just before I do so, however, I would like to discuss briefly what might be called unconventional weapons.

Unconventional Weapons

Among military writers and indeed among politicians in the bigger Western democracies, there seems to be a certain anxiety to prove that the possession of large quantities of highly efficient nuclear weapons is an actual asset to peace by being a deterrent to war. Whether this is correct or not, one thing is quite clear. It is not possible for the semi-developed countries who are building up their armies to include nuclear weapons among their ordnance. Any such thought must be resolutely put aside for some considerable time to come and perhaps experiments with atomic developments should be confined to the production of power for civil use, thus increasing the pace of industrialisation. I do not think, however, that the same restriction applies to the rocket types of weapon, together with the electronic devices to guide them, particularly in the short range group. Here is where I think there is much scope for development and I would suggest that this is a field which requires to be given a high priority. There is a simplicity about the rocket projectile which particularly fits it for manufacture and use in semi-developed countries and if it can be homed on to pre-set targets its value increases a hundred fold. You will note I have particularly mentioned the short range group, a group which I understand has many fewer problems than those of longer range.

Tactical Requirements

I now come to the question of tactics and the equipment that is required to make these tactics successful. As the subject is an extremely large one and the time at my disposal is necessarily limited, I will, with your permission, confine myself to certain general remarks and then discuss the salient points regarding the various branches that go to make up an army. One of the things that immediately strike you when you look at a map of the type of country to which I refer, is the scarcity of those main lines of communications; roads and railways. Basically all wars must be fought along some sort of axis and this is usually a road. The speed of advance will also be related to the capacity of the road. Therefore, while there may be a number of fronts, because of the restriction of communications such fronts will be narrow and it will be the centres of communication which will become tactically

important rather than geographical features. In such circumstances an army must emphasise its mobility, have the ability to hit hard on a narrow front and be prepared to hold ground for long periods with a minimum of administrative support.

One of the ill-effects of the last war has been the tendency to make armies too vehicle-conscious and, in my opinion, to achieve true mobility it is necessary to rationalise and in most cases reduce the number of vehicles rather than add to them. Also, it is obviously necessary to bring down equipment to absolute essentials and do away with anything redundant or luxurious. It is those armies which are over-equipped and over-pampered that are the slowest to move and quickest to get casualties. Further, in planning organisation, the staff must ensure that units and formations are correctly designed to meet all local situations and not designed to meet hypothetical situations which are never likely to arise. Organisations must also not be too lavish with technical equipment, technical personnel and leaders if there is an insufficiency of backing behind. In this matter of organisations, the assistance of the scientist with his operational research is obviously most useful as it must indicate what part does not pay dividends. I believe there is considerable scope for such re-organisation which, of course, must be worked on the basic plan to which I have referred before.

Another feature of operations in semi-developed countries is that due to lack of resources the same type of formation may have to operate over two or three distinct types of terrain, such as flat rolling plains or the area of a river delta or an area where there are high wooded hills. I do not consider that it is necessary to have either different organisations or totally different equipment to meet these varying types of terrain. But what I do suggest is that the basic equipment must be so planned and designed that it is capable of functioning in various types of country and what is more important, is largely capable of being transported in or on various types of transport.

Infantry

Now we come to the actual Arms themselves. First of all, let us consider the Infantry which after all is the basic Arm in any army. Unfortunately the Infantry which should be the most versatile of all forces has perhaps become the most immobile. And, what is worse, it has become very road-bound. I suggest that it is essential to restore to Infantry

the mobility which it has lost and see that it operates quickly not only along the narrow road axes, but also achieves the power of moving round the flank. This again can best be done by reducing the amount of equipment they carry and making them more dependent on themselves rather than a supply train of vehicles. The emphasis must be on lightness of weapons and equipment, lack of superfluity, and compactness.

Here I would like to enlist the support of my colleagues in the Air Force. One of the important subsidiary tasks of any Air Force is to assist the ground forces to advance and I would suggest that in the planning of Air Forces, particularly the smaller Air Forces, sufficient consideration must be given, not only to the operational side of Army co-operation, but also to the logistical side. Improved air logistics is one of the main methods by which mobility can be restored to armies. Perhaps the proposition may sound at first sight to be an expensive one, but if the relative costs of logistical air support and logistical ground support are worked out, it may well be that the savings from one would go to provide the wherewithal for the other. In peace time this logistical air cover might be used for national works thus making for further economy. Perhaps our statisticians would care to work this out as an operational problem.

Armour

Next we come to Armour. In any highly industrialised country with the means to afford it, armies normally have a family of three tanks; a light tank for reconnaissance, a medium tank for exploitation and a heavy tank to support the Infantry on to its objective as well as function in the defensive anti-tank role. Semi-industrialised countries cannot afford this family of three and, therefore, they must function with one universal tank. This tank must accept the dual roles of exploitation and Infantry support, leaving reconnaissance to other types of equipment. If it is to perform these tasks with any degree of competence it must of necessity have the weight of armour and the calibre of gun to allow it to function. All these factors make for a medium heavy type of tank.

There is a school of thought that advocates the employment of a large number of light tanks instead of a smaller number of heavy tanks. While there may be something to be said for this in a Western type of war with the atomic problem, and even here I think that this mass of light tanks must have a considerable backing of the heavier type, I do not think for a semi-developed country this school of thought is correct. In such a type of country with its scarcity of communications and the lack of sustained

air supply, the requirement is for the maximum of fire power with the minimum clogging of communications. I suggest that this is another argument for fewer but the more effective medium heavy type of tank. Incidentally, in making this suggestion, I take into my calculations the increased repair, recovery and maintenance problems which will present themselves with the increase in the number of specialised vehicles, big or small.

In dealing with the problems of reconnaissance and cross country mobility, I would like the views of my scientific colleagues on the merits of wheels versus tracks for the lightly armoured cross country vehicle. From the expense aspect, both of initial purchase and later maintenance, the wheeled vehicle is far cheaper than the tracked vehicle. From the point of view of cross country performance, it is my belief that the modern wheeled vehicle has a comparable performance and a much greater range and, therefore, it may be well worth while putting all reconnaissance on wheels.

Artillery

As regards artillery, I have already put forward a suggestion on the development of rockets, with a homing device if possible. These rockets cannot, of course, be the main artillery weapon but when working on a narrow front as one will have to do, there is a good case for increasing the range and accuracy of conventional weapons, particularly the heavy mortar. Coupled with this must be the reduction of weight of the launching device or carriage. There is a good deal of research and development going on with regard to this.

Communications

Communications within the army are another aspect of equipment where I will ask you to consider some perhaps rather unorthodox views. I have stressed the need for mobility but this tangle of signals wire that we get mixed up with, wire which is continually being reeled out, reeled in and repaired, seems to me to be the very antithesis of mobility. I suggest there is a very good case for all communications forward of Divisional HQ being by wireless alone and as much as possible of that use of wireless by radio telephony. If a record of conversations or orders are to be kept, there has been considerable development on the portable tape recorder some types of which can, I believe, be carried in a pocket, while for security purposes a simple scrambling device might be used. I suggest to you

that there is considerable scope for carrying out some original research in this matter, with an actual active formation and the statistical experts. With the development of VHF, SHF and UHF frequencies, there is a possibility of one set using a large number of channels and this development can help to reduce the amount of equipment carried by an army.

Army engineers operating in Eastern theatres will always have as one of their main problems the question of quick bridging. There seems to be a necessity for the development of pre-fabricated bridging which can be assembled quickly. Here is another field where the scientist and the engineer might combine with good results. Further if a suitable bridge can be found, it could well be used in peace to open up communications within the country itself.

Soldiers' Uniforms

So far I have been dealing with the hardware department and as my last item on equipment I propose to move to the tailor's shop. I would suggest to you that there is considerable scope for the development of a suitable fighting kit for the soldier to meet the particular needs of the terrain over which he will be operating as well as all the other requirements that a soldier's uniform demands. This attempt to make the same uniform to be a smart walking out dress in peace and a satisfactory battle dress in war seems to me to be quite ludicrous and in point of fact expensive to the State. Let the soldier have a smart walking out dress designed by a tailor for his more peaceful functions and a proper battle dress designed by the scientist for war. The former will bring in the recruits and catch the eye of the girls, while the latter will allow the battle to be won easier.

In the suggestions I have made for the possible equipment and organisation of a local army that is to operate in semi-developed countries, I have stressed the importance of simplicity, standardisation and the minimum of equipment. There are two corollaries to this which must, however, be borne in mind. Firstly, with the simplicity of material, such an army can only function effectively if the standard of training is extremely high and, therefore, no extraneous problems should be allowed to interfere with training if an effective army is to be maintained. This simplicity means that there is more responsibility on the individual officer and man and if he is to accept this responsibility, he must have confidence in himself, his leaders and the weapons with which he is fighting. Secondly,

the actual soldier himself must be physically tough and mentally conditioned to accept long periods of considerable hardship without any luxury whatsoever.

Speeding up of Indigenous Production

Before I end my talk, I would like to put a personal view across as to how these weapons are to be obtained and manufactured. I have already stressed the importance of indigenous manufacture and I cannot overstress this particular aspect. Admittedly, some equipment will in the beginning have to be imported from abroad but it is obviously better to accept the second best temporarily, provided it is manufactured indigenously, rather than rely on outside sources of supply for vital equipment. Here we look to our scientists and development engineers to speed up this process of indigenous manufacture. I further suggest that a country faced with the problem of re-equipment must set up some kind of effective machinery to ensure that all resources within the country are utilized and that production is based on a mutually agreed schedule between the government, who have to finance it and apportion resources, the scientist, the engineer and, last but not least, the user. Like there are considerable dangers in accepting completely the military organisation of another country, I submit there are equal dangers in accepting completely the production organisation and lay-out of another country. This must also be worked out from a basic long-term plan founded on actual conditions in existence.

Conclusion

In conclusion, I would like to say that the main points I have tried to bring out are:—

(*a*) the need for original thinking;

(*b*) the need for a sound long-term plan for re-organisation based on local conditions and requirements and not based on a general principle;

(*c*) the need for mobility and the excision of anything that hampers this mobility;

(*d*) the need for simplicity and standardization, thus making the technical handicaps easier to deal with; and

(*e*) the need for the closest team-work between the soldier, the scientist, the development engineer and the production engineer, all linked together and working to a clear directive given to them by their government.

GENEVA PROTOCOL TO COVER ATOMIC WARFARE

A PLEA FOR THE EXTENSION OF THE GENEVA PROTOCOL OF 1925

MAJOR-GENERAL B.M. RAO

THE world at the moment is ranged on two sides which are intensely suspicious of each other. This suspicion has resulted in stock-piling, by both sides, of weapons of mass destruction and an armament race. On one side is the U.S.A. and her allies, and on the other the Communist bloc. A tiny spark anywhere in the world can unleash these weapons bringing death and destruction, not only to the parties engaged in hostilities, but to all mankind. The future of civilisation as we know it, is indeed very bleak.*

Can anything be done to avert such a future ? In an affair which concerns all mankind, it should not be left to the prospective belligerents alone to decide when and how the weapons will be used. Neutral nations must have a say in the matter in their own interest and that of the world at large.

Philosophers and scientists have made repeated appeals to neutral nations to take the initiative in the matter. India, as one of the leading neutrals in the world to-day, has, therefore, a great responsibility on her shoulders. It should not be said by future generations that at a critical moment India failed in her duty by humanity.

The U.S.S.R. has consistently advocated the total ban of atomic weapons. The U.S.A., on the other hand, has, as consistently, opposed such a move or advocated so many safeguards which the other side has been unable to accept. The reason is obvious. The U.S.S.R. and China have so many fully equipped field formations in a state of readiness that the U.S.A. feels that the only deterrent so far has been the fear of immediate and savage retaliation by atomic weapons and guided missiles. The U.S.A. feels too that only her stock-pile of these weapons has

* This article was written before the recent easing of tension noticeable in international relations. But the author's plea for the revision of the Geneva Protocol holds good. (*Ed.*)

prevented the cold war from becoming a shooting affair. She quotes the Berlin blockade, Korea and the conflict in East Asia in support of her argument.

Weapons of mass destruction are not entirely new. During the last stages of the first world war, gas warfare came into being. Aerial bombing also came into prominence. The age-old concept of limiting fighting to the actual combatants only, no longer existed. War became a total war, in which whole nations were engaged, and not merely their armed forces. The only difference today is that the power of such weapons has increased a millionfold and the speed of aircraft has gone up ten times. That is to say, infinitely greater destruction can be caused in a much shorter period than at any time previously and before any defence can be put up by the enemy.

GENEVA PROTOCOL

The previous generation foresaw such a possibility, although it did not visualise atomic weapons. In 1925, the Geneva Protocol was signed by all nations, agreeing not to use weapons of chemical and bacteriological warfare. It must be noted that there was no ban on their manufacture or experimentation. The ban applied only to their use during hostilities. From the time that the Protocol was signed by nations, and up to the time of the last World War and since, experimentation has gone on without interruption. During the War, belligerents on both sides had built up vast stocks of gas bombs and shells, but there is no evidence that they were used.

What was the reason behind this apparent and surprising regard for an international agreement, when so many other agreements were observed only in the breach? Even the Red Cross Conventions, which were purely humanitarian, were often violated by both sides. The real reason why these weapons were not used, was in all probability the fear of immediate retaliation by the enemy with similar and perhaps far more powerful weapons, rather than any squeamishness about their use or regard for the Protocol. Each side knew that the other had stock-piled these weapons. It was the fear of retaliation that acted as a deterrent, rather than any regard for international treaties.

A similar situation exists in the world today. Will an extension of the Geneva Protocol of 1925 to cover atomic warfare help? It is the con-

sidered opinion of many men and women that it will, so long as no effort is made to ban the manufacture, stock-piling and experimentation of atomic weapons. As a further safeguard, both sides could lay down certain lines or demarcation of territories under their control, the violations of which would leave them free to disregard the Protocol.

Anyhow, it is worth while pursuing the matter. Even if the revised Protocol fails to halt a conflagration, the world will not have been lost for want of trying. Well-known neutrals such as Switzerland, Sweden and India, together with humanitarian organisations like the International Red Cross, should, therefore, sit together and revise the Geneva Protocol of 1925 to ban the use of atomic, biological and chemical weapons in war.

Such an opportunity presents itself during 1956, when India becomes the host country to the International Red Cross Conference. It is the hope of all mankind that these countries, together with the International Red Cross, will evolve a formula which will be acceptable to both sides.

MILITARY ENGINEERS ON NATIONAL PROJECTS

IMPLICATIONS OF THE EMPLOYMENT OF MILITARY ENGINEERS ON NATIONAL PROJECTS IN PEACE

COLONEL H.C. VIJH

SHOULD military engineers be committed in peace on civil projects of national importance ? The reasons why it is desirable in some form or other are many.

The normal training of military engineers in peace time is restricted to field engineering, which is their primary task during war. But more often than not the military engineer is called upon during war to carry out major civil engineering works involving a high degree of technical knowledge. This they obviously cannot abruptly be expected to do without substantial previous training in such works. Such training can be obtained only by actual employment of military engineers in peace time on works of a similar nature.

The degree course in engineering run by the College of Military Engineering for young officers imparts theoretical knowledge of engineering only. The young graduates in military engineering cannot get sufficient chance of practical experience except in a war, because the artificial conditions created for practical training in peace can never be as realistic as actual spontaneous work on the ground which alone makes engineers think for themselves and helps to develop their general engineering sense. The employment of these young graduates on civil projects in peace will give them the opportunity for gaining necessary experience in practical engineering.

The variegated types of work involved in major National Projects place great demands on the engineers' resourcefulness, improvisation skill, power of making quick decisions and habit of taking responsibility. Thus, the officers, JCOs and NCOs employed on such works will get ample opportunities to cultivate the qualities that go to make a leader, which will stand them in good stead in time of war.

The normal size of the engineer element in any army is far from sufficient to be able to cope with the vast demand of engineer tasks during war,

in forward areas and in the communication zone and at the base. It is, therefore, always necessary for almost the entire civilian engineer resources of the country to collaborate with the military engineers in the performance of all engineer tasks in War. If the military engineers remained completely segregated from the civil engineers in peace time and if the technique of working of the two bodies was unknown to each other, collaboration between the two during war would be difficult and ineffective. If, however, the military and civil engineers worked together in peace time at least in certain spheres of engineering activity, their mutual collaboration during war would be smooth and thorough.

The modern trend of thought and needs of economy do not permit of having a big standing army in a country without any productive value in peace time. The nation can only afford a large army if in peace time the army can compensate the nation in some form for the heavy expenditure required to maintain it. The engineer element of the army is in the best position compared with the other elements of the army to compensate the nation for the heavy defence budget. This implies the useful employment of military engineers in peace in nation-building projects.

Thus, both from the point of view of the nation and the Corps of Engineers, the employment of military engineers in peace on civil projects is undoubtedly desirable. In the USA, this fact is fully appreciated. The vast engineering organisation of the Corps of Engineers of the USA operates all over their country in peace time on civil projects like flood control and navigation works, and all district engineers in USA are drawn from the army.

Possible Modes of Employment

The employment of military engineers on civil projects can take one of the following forms. As to which of these forms of employment is/are most suited to the military engineers will be brought out in subsequent discussion.

(*a*) Projects may be executed exclusively by army engineer troops. Recent examples of this method of employment are the construction of roads in NEFA and Nepal.

(*b*) Projects may be executed by military engineer officers through contracts, just as all projects are normally executed by the Military Engineer Services.

(*c*) Execution of projects may be carried out by the joint effort of military and civil engineers, each agency doing that phase of work for which it is best suited. A recent example of this is the well-known Jammu-Pathankot road.

(*d*) Military engineer officers and other ranks may be placed at the disposal of civil engineering departments for limited periods for any use the latter may like to make of them.

Relative Cost

If a civil project is to be executed by army engineer units and equipment, the apparent cost of the project is likely to be greater than it would be if the work was done by civil engineers. The reasons for this are as follows.

(*a*) The troops have to be paid, fed, clothed, lodged and looked after at a much higher standard than civil labour.

(*b*) The troops have to continue to be trained for normal army roles. For this, time has to be saved at the cost of the work.

(*c*) Administrative arrangements for keeping the health, morale, discipline and education of troops at a proper pitch have got to be maintained all the time.

(*d*) Officers and troops have to be sent on annual leave, hospital treatment and sick leave when required, periodical courses of instruction, routine army examinations and various zonal conferences and meetings—at the cost of execution of the project.

(*e*) The organisation of army engineer units, in respect of their officer structure and equipment held, is tailored for the war requirements and is therefore heavier than the corresponding civil organisation.

But the assessment of the cost of a project, executed by army units, by the normal civil standards would be unfair and unjustified. The army engineers would be maintained by the country in peace time in any case, and if they are employed on a civil project there seems to be no justification for charging their cost to the project. In fact, if the cost of maintaining regular army troops and equipment used on a civil project is not charged to the project, the cost of its execution by army engineer troops would be far less than the cost of its execution by a Public Works Department.

Recommended Mode of Employment

In actual practice in recent times, however, there has been a tendency for unhealthy competition between the military and the civil engineers when both of them have been employed on projects of a similar nature at different places, and the main thing pointed out against the military engineers in such competition is the cost of execution of works by them. This state of affairs places the army engineers at a great disadvantage. It can be avoided by adopting one of the following courses :

(*a*) Any civil projects entrusted to the army engineers should be executed on an 'operational' basis, *i.e.*, the cost of regular army troops and equipment should not be charged to the project, nor should the project accounting follow the normal peace-time system.

(*b*) The army engineers should be employed on particular types of projects only for which they are best suited, *e.g.*, mountain roads, airfields, harbour works ; and civil engineers should be precluded from executing such works. This stratagem has been adopted in the United States of America, where flood control and navigation works are the exclusive domain of military engineers.

Preparatory Work Necessary

Thorough planning of a project, in respect of technical and administrative problems involved, is essential before launching the engineer troops on site of work for actual construction. The absence of such pre-planning in the past in the case of certain urgent projects has led to tremendous waste of time and effort in the initial stages of the project, poor design, avoidable discomfort to troops, and heavier expenditure than would have been necessary otherwise. This pre-planning comprises :—

(*a*) Detailed technical reconnaissance and planning, including finalization of specifications, designs, working drawings and an approximate estimate of cost.

(*b*) Detailed administrative appreciation, giving the plan of dealing with the following problems :—

(i) Supplying dry and fresh rations, clothing and other personal requirements of troops at the site of work.

(ii) Supplying POL for plant, vehicles and engineer equipment at the site of work.

(iii) Delivering engineer and ordnance stores at the site of work.

(iv) Method of indenting and delivery of spare parts for maintenance of plant, vehicles and engineer equipment.

(v) Repair, recovery and evacuation of machinery and vehicles.

(vi) Providing adequate medical cover in terms of medical personnel and stores and a suitable system of evacuation of casualties to the base hospital.

(vii) Provision of any special requirements, *e.g.*, snow clothing, rum for issue in inclement weather, rubber boots for working in slush, protective clothing/measures against any local pests, and so on.

(viii) Postal facilities for troops.

(ix) Adequate amenities for troops.

(x) Compensatory measures for special hardships which the officers and troops on site are put to.

(xi) Means of exercising command and control, *viz.*, signal communications.

Detailed Technical Reconnaissance and Planning

There has been a tendency in the recent past towards launching a construction force on the site of the project without having carried out detailed technical recces and surveys. This has resulted in the production of inaccurate estimates and time programmes. The fault in such cases is not of the men on the spot in charge of execution of work but in the absence of pre-planning. Nothing can be further removed from good engineering than minimising the importance of the tremendous preliminary work necessary before embarking upon the actual construction of a project.

Detailed technical planning first of all involves the detailed recce of site with a view to examining all possible courses open and then eliminating them one by one in favour of the best course decided from all engineering considerations. In fact, it is dangerous to report the feasibility of a project without a detailed recce. When the best course to be adopted has been decided upon, then the specification which would fulfil the requirements laid down by higher authority should be decided. This may involve preparation of detailed designs and working drawings of certain structures. Only when all this has been done can one work out the quantities of various items of work required to be carried out, and from that data work out the

engineer resources required for executing the work, *viz.*, plant, machinery, engineer troops, civil labour, engineer and ordnance stores, and so on. And, finally, the approximate estimate of cost is prepared. Obviously, all this detailed planning must be finalised before the construction troops and equipment arrive at site of work, although the movement of troops and equipment itself requires considerable pre-planning which can go on side by side with the technical planning of the project.

Detailed Administrative Planning

In the case of projects proposed to be executed by engineer troops, the administrative problems are far greater than the engineer problems involved. Therefore the administrative planning of a project is far more important than the technical planning, and must be carried out to the minutest detail of all administrative requirements before commencement of construction work. Some aspects of this problem are discussed below.

When the location of a project is in a very much out-of-the-way place, the taking of heavy machinery to that place becomes a mighty problem which is often overlooked. A case in point is NEFA, where certain roads were reported to be feasible of construction but had later to be abandoned because heavy machinery could not be taken to the site of work.

The regular flow of dry and fresh rations, POL, engineer and ordnance stores, and other requirements of troops and work, is an important basic administrative requirement, which must be ensured in every detail beforehand. This involves the provision of necessary Supply and Transport personnel and equipment for manning the various depots and movement of stores.

The repair of plant and vehicles in out-of-the-way places is a major headache. It involves provision of adequate EME personnel and equipment for doing the necessary repairs on site, provision and procurement of spare parts, and arrangements for evacuation of derelict plant and vehicles. Normally none of the existing types of EME units meets the requirements of a project by itself, and a special set-up, which may be an amalgamation of several types of EME units, has to be established.

The treatment of the sick, evacuation of serious patients, testing and purification of water, hygienic and anti-malarial measures, testing of food and looking after the health of troops generally, all require quite an elaborate medical cover for troops on a project, which must be appreciated in detail beforehand and catered for. The method of supply and storage

of the comparatively perishable medical supplies in out-of-the-way and damp places also requires to be specially gone into.

Signal communications necessary for exercise of control by the Project Commander over units deployed over vast areas, for communication between and within the various units, and for rear link with higher authority, assume great importance when the project is being executed in an undeveloped and remote area. Provision of all three normal types of signal communication, *viz.*, telephone, wireless and signal despatch service, is necessary, to cater for the various types and classes of communications and to ensure quick clearance of signal traffic. A reserve pool of wireless sets must be provided for immediate replacement of derelict sets, as well as an efficient system of quick repairs to sets needing minor repairs.

The administrative problem does not end at working out the actual requirements. The greater problem is that of the sources from which these requirements have to come and the elimination of possibilities of differences of opinion from such sources. From past experience, demands for various administrative requirements by an officer in charge of a project have either taken too long to be fulfilled or been rejected partially or totally, with great detriment to the construction of the project or the morale of troops employed on it.

Adverse Effects and Suggested Solutions

The officers and troops employed on civil projects in peace are adversely affected in the following two aspects:—

(*a*) Their military, field works and, to some extent, trades training suffers considerably.

(*b*) The conditions of work on most civil projects which the army engineers are called upon to execute closely resemble field conditions. As such, they throw considerable strain on the mental, physical and financial well-being of the officers and men. This is not conducive to the maintenance of high morale in peace.

Adverse Effect on Military, Field Works and Trades Training

The training of officers and troops is adversely affected in many ways with corresponding effect on their individual careers and on the army as a whole.

The officers remain out of touch with basic military training during their employment on a project. They also find little time for private study. This places them at a great disadvantage in regard to the retention and promotion examinations and other army courses. The absence of touch with military training for a considerable period is naturally reflected in their personalities and general conduct ; this in turn is reflected in their annual confidential reports. Thus, officers employed on projects are likely to suffer in their military careers to a greater or a lesser extent for no fault of their own.

The units employed on projects are debarred from military, field-engineering and trades training during their employment on the project, because the 8-hours-a-day work on the project leaves no time for this nor does the splitting up of the units into numerous detachments make any such training feasible. The absence of trades training affects not only the general efficiency of the units but also the individual careers of the men in that they cannot be up-graded in trades classification. The effect of the absence of basic military training and field works training, for the duration of the project, on the military efficiency of the units involved is obvious ; the units become rusted in this respect and are not quite fit for war until this part of their training is brushed up again. Some training of certain types is no doubt imparted automatically in the execution of the project, *e.g.*, use of explosives, masonry, carpentry ; but this training does not conform to the standards laid down for up-grading of personnel from one class to another, while certain other trades, *e.g.*, tinsmith's work, may not come into play on the project at all.

Adverse Effects on Morale

It is an understatement to say that the conditions of work on peace-time projects in out-of-the-way places closely resemble field conditions. Whatever may be the strain imposed by field service, there are certain compensations that go with field service by tradition, *e.g.*, more amenities, free use of transport in some cases, certain extra financial allowances, exemption from examinations, better facilities for military training that help in the individual careers of officers and men, and so forth. The conditions of work on projects in out-of-the-way places are as bad as field conditions without any of the compensations attached to field service.

Some of the factors contributing to excessive physical, mental and financial strain imposed on the officers and men engaged on national projects in peace, which are almost always executed in undeveloped,

outlandish, forested and mountainous parts of the country, where the normal civil engineer organisations of the country cannot or do not like to function, are enumerated below:

(*a*) Virgin dense forests and untrodden mountains make both walking and working extremely arduous.

(*b*) Wild animals, *e.g.*, elephants, tigers, panthers, pythons, snakes, make life full of dangers.

(*c*) Rigours of climate, abundance of rain, presence of countless pests like leeches, poisonous flies and insects of numerous types, malarial conditions, shortage of essential ingredients in water, *e.g.*, iodine, affect both physical and mental health.

(*d*) Short daylight hours in jungle-grown and mountainous terrain, make the normal working hours, *viz.*, 8 hours, appear too long as they last almost from dawn to dusk.

(*e*) Absence of the normal amenities of life available to troops in cantonments, *e.g.*, decent living accommodation, electricity, pictures, theatricals, restaurants, canteen stores (such stores do not arrive in time in outlandish places or difficulties of use of transport make it impossible for them to be delivered to certain places).

(*f*) Absence of as good food as available to troops normally. Examples: Fresh vegetables and meat cannot be delivered to troops beyond two days' march from roadhead in any reasonable state and tinned food has therefore to be eaten; fresh milk is never available; *atta*, sugar, salt and *dals* all go bad in monsoon conditions and have to be consumed in that bad state.

(*g*) Necessity of maintenance of two establishments by officers and men, because families cannot normally be accommodated in such conditions.

(*h*) Worries of domestic life to officers and men, due to their families being hundreds of miles away and the Government giving no facilities or protection to these separated families.

(*i*) High cost of Officers' messing, because of higher cost of articles of food and consumer goods in outlandish places and because bad working and living conditions lead to extra expenditure on escapist pursuits.

(*j*) High cost of long journey home in case an officer or other rank has to go home on casual leave for any domestic reasons.

(*k*) High cost of maintenance of clothes, books and shoes, and other private goods; because the wear and tear in rough country and rainy climate is heavy and, also, fungus attacks all these articles.

(*l*) The long time-lag in receipt of letters from families and vice versa.

In a modern war, the military engineers have to do more than their fair share under operational conditions in furthering the Force Commander's plan. If in peace also the Engineers are continuously employed on National projects under adverse conditions, without adequate relief or compensation, the cumulative strain on the morale of the officers and men of the Corps of Engineers will certainly be far too much.

How to Offset Adverse Effect on Training

The military, field-works and trades training of officers and men employed on projects of national importance in out-of-the-way places cannot by any means be carried out during their employment on such projects. Experiments to achieve this have been tried with no success. The preoccupation with the project work is so much that it leaves little time for any work, training or study outside the project work. It must be appreciated that the national projects which the army engineers are called upon to execute are generally of a rather difficult nature. The obvious conclusion is that all training of officers and men employed on a project has to be put off till they come away from the project. To achieve the necessary training in order to maintain the military efficiency of officers and men and the army engineers as a whole, and in order to allow these officers and men to have a reasonable chance to better their individual careers, the following remedies are suggested:—

(*a*) The normal tenure of service on a project of a unit as a whole or of an officer individually should not be more than 18 months. During these 18 months it should be accepted that they will get no military training whatsoever. The period of 18 months is suggested because it allows officers and units to work on the project for two fair-weather seasons, one preceding and one following a monsoon, thus allowing continuity of project work.

(*b*) The officers and units coming out of a project should not be posted to another project for at least a period of 18 months, during which it should be ensured that they are employed in a manner which gives them the maximum opportunity for military, field-works and trades training.

How to Offset Adverse Effects on Morale

The adverse effect on the morale of officers and units employed on National projects in peace time can be offset, as far as possible, by the following devices :—

(*a*) The tenure of employment should be 18 months, as suggested above from other considerations. If an officer or soldier knows the duration of a period of hardship and is certain that this period will come to an end at a particular date, he is psychologically better able to undergo that period of hardship than he would be if his tenure of service in such conditions was indefinite. This device will minimise the physical strain and, to some extent, the mental strain on the officers and men, as far as possible. The continuity of work on the project should not be affected by this if the posting out of officers and units is suitably staggered, *e.g.*, 50 per cent of the units are changed over every 18 months, and about half the officers of the controlling headquarters are changed over every 9 months.

(*b*) The following inducements and compensations should be given to the officers :

(i) 33⅓ per cent extra pay should be given to compensate for the extra expenses and hardships involved. This allowance is being given already to all Central Government officials, except those of the Indian Army, who are posted to a service operating in NEFA even though their headquarters may be in Shillong or elsewhere outside NEFA.

(ii) Non-family allowance, at 16⅔ per cent of pay, should be given to compensate for the extra cost of maintaining two establishments, *viz.*, self and family separately.

(iii) Family accommodation including furniture and allied services should be provided at one of the cantonments, where family accommodation for service personnal exists, at the normal rates of rent, water, electricity and

furniture chargeable from army officers under their pay rules.

(iv) Officers should not be detailed for army courses and examinations, which affect their promotion, for the duration of their employment on a project and until six months thereafter, so that they get a fair chance to study and to compete with other officers placed more favourably.

(v) Officers must be assured of being posted to a family station after completing their tenure of service on a project. Cases have occurred in the past when officers having served for over two years in NEFA have been posted to J & K straightway.

(vi) Comfortable free single accommodation should be provided at the site of the project, including good arrangements for supply of electric lighting, water and furniture.

(*c*) The following compensations should be given to the troops:

(i) A suitable batta allowance should be given to JCOs and all other ranks by rank structure.

(ii) Family accommodation for entitled personnel should be provided at suitable cantonments.

(iii) Extra clothing allowance at rupees five per month should be given to them to cover extra wear and tear of clothing and boots.

(iv) Well-stocked canteens should be provided at the site of the project.

(v) Sufficient amenities, in the shape of mobile cinemas and dramatic parties, ample supply of radios, gramophones, indoor games, sports gear, reading material, should be provided.

(vi) Free issue of rum at suitably frequent intervals during inclement weather.

(vii) Extra or special rations should be provided where necessary to compensate for absence or shortage of fresh rations or for extra heavy physical work.

Inadequacy of the Existing Field Units

The regular army engineer units are constituted so as to cater for engineer tasks commonly met during operations in war, *viz.*, demolitions,

laying and lifting of mines, construction of temporary roads and bridges, building defence works, and so on. On the other hand, the types of tradesmen mostly required on the construction of major civil projects are masons, bricklayers, carpenters, joiners, concreters, surveyors and draftsmen who exist in very few numbers in the regular army engineer units. Thus, the existing engineer units of the army are not quite suited for the performance of major public works projects and there is need for raising special units consisting of artificers in the main to meet the requirements of civil projects.

It has been pointed out before that, in order to enable the training of military engineers to be maintained at the level of fitness for war, the regular units must be relieved from project work and revert to normal training for about half of the time every three years. Taking this into account, and reckoning that quite a substantial proportion of the regular engineer units would always be located on the country's borders for normal defence measures, the manpower available from the regular army engineer units for employment on civil projects would be far from adequate. Thus, even from this angle, the need for raising more engineer units to cope with public works in peace time is established. And, if new units have to be raised, they might as well be of a type specially suited for construction of public works.

Necessity for Additional Staff and Units

It has been argued above that it is both in the interest of the Nation and of the Corps of Engineers itself for army engineers to be employed in peace time on large-scale public works. The existing set-up of army engineers in India is inadequate, in respect of the numbers and the training of men and officers, for tackling major civil projects. Therefore, it is obviously necessary to create an additional force, in the shape of suitable engineer staff and units, within the Corps of Engineers, to take on civil projects of national importance.

The cost of the additional staff and units so created should be distributed proportionately over the various civil projects executed from time to time and need not be an additional drain on our defence budget.

The phrase 'General Reserve Engineering Force' has been used for the last several years in the army engineer circles in connection with the conception of an engineer force required to tackle civil projects in peace and which may act as a reserve force for war. This phrase would be appropriate if a distinctly separate force for dealing with civil projects was contemplated and it was presumed that the regular army engineer units

would not be normally employed on such projects. But the title ' General Reserve Engineering Force ' does not fit in with the conception of employing spare regular army engineer units, supplemented by specialist planning staff and artificers' units, as recommended in this article.

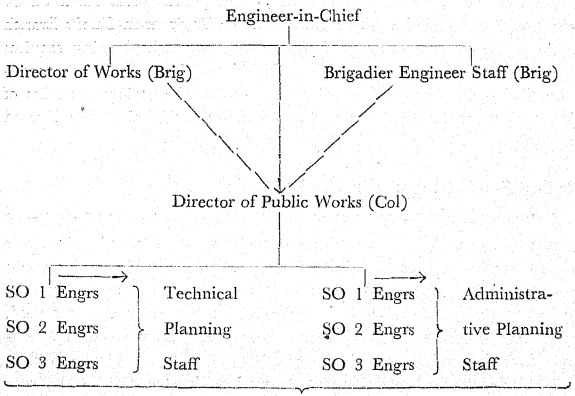
The special staff and units required for civil projects may be called the ' Public Works Engineer Force ' on the analogy of the Public Works Department. This name will also automatically imply that the cost of the Public Works Engineer Force is to be debited to the Public Works it undertakes. This name is also amenable to a suitable abbreviation, *viz.*, ' PWEF '.

A suitable set-up of the Public Works Engineer Force is recommended below.

Recommended Set-up for the Proposed ' Public Works Engineer Force '

Planning Staff at Army Headquarters

The need for a distinct planning staff for civil projects has been explained before. The importance of detailed planning of both the technical and the administrative aspects of a project before its actual execution is taken in hand has also been stressed. This brings out the necessity for the establishment of a Directorate of Public Works, a suitable set-up for which is visualised as follows:



The Director of Public Works would exercise overall control over all public works on behalf of the Engineer-in-Chief under the guidance of the Director of Works and the Brigadier Engineer Staff. He would use the existing architectural, estimating and general planning staff of the Engineer-in-Chief's Branch, suitably augmented by providing incremental establishment where necessary. His technical planning staff would assist him in organising preliminary reconnaissances before deciding to take on projects, making estimates of cost and time, laying down specifications, producing calculations and designs and working drawings, and giving general technical guidance during the execution of the work. His administrative planning staff would assist him in detailed planning of all administrative requirements as enumerated above and in liaising with all Branches of the Army Headquarters and all Ministries of the Central Government for arranging to meet all such requirements from time to time. His office would also be responsible for progressing the projects, maintaining data and statistics, conducting any possible research work, and liaising with the various central specialist engineer organisations, *e.g.*, CPWD, Indian Roads Congress and CWINC, for their advice and co-operation where necessary and for ensuring co-ordination in all central public works.

That the entire detailed planning of all public works taken on by army engineers must be done centrally in the Engineer-in-Chief's Branch at Army Headquarters is clear from the fact that such planning requires constant liaison—for obtaining policy decisions, guidance and assistance—with the various Central Government Ministries, the various Branches of Army Headquarters and the various specialist technical bodies located in Delhi.

Project Staff at Command Headquarters

The office of the Chief Engineer of a Command would be relieved immensely of work in connection with civil projects if all planning were done at the Engineer-in-Chief's Branch. Yet there would be a fair amount of extra routine work to be done, *e.g.*, correspondence, progressing the projects, provisioning of engineer stores and any civilian staff required, liaison with Command Headquarters for arranging all necessary administrative requirements. For this, the provision of an SO 2 Engrs (PWEF), with suitable clerical establishment, to work under the SO I (G) Engrs of the Command, is recommended.

Raising of Specialist Units

(*a*) *Engineer Battalions*

It has been pointed out before that the need for artisans on civil projects is great, and cannot be provided by the existing field engineering units. It is therefore necessary to raise special Engineer Battalions consisting mostly of concreters, bricklayers, masons, joiners, carpenters, blacksmiths and painters, on the lines of the Engineer Battalions raised at Sialkot during the last world war. About six such battalions should be raised to begin with.

(*b*) *Tipper Companys, Engineers*

The need for tippers on any project is great. Tippers also help in making up the deficiency of general transport, which is always terribly short. The existing Tipper Company, ASC, is inadequate for meeting the needs of civil projects ; besides it is a war reserve, not to be used indiscriminately in peace. Hence the raising of at least two Tipper Companys, Engineers, for use on civil projects is considered essential. Incidentally, the mileage and other restrictions on the use of normal army transport are so many that it becomes well-nigh impossible in practice to meet all the transport requirements of a project ; the proposed Tipper Companys, Engineers, must be free from all such restrictions.

(*c*) *Labour Battalions*

The need for unskilled labour on civil projects can go to very high limits. In outlandish places it becomes extremely difficult to procure sufficient labour, chiefly because labour cannot get food, clothing and shelter locally. It is therefore necessary to have regular labour battalions. These can be raised by the Central Ministry of Labour, with whom a standing arrangement for provision of labour battalions as required should be made.

Set-up of Executive Staff and Troops for each Project

This must obviously vary with the size and nature of each project. A suitable set-up for construction of a mountain road recommended by the author has been given in his article ' Mountain Roads and their Construction ' published in the October 1954 issue of the Journal of the Institution of Military Engineers. If the project in question is a harbour work, the

requirement of units would obviously be very much different from that for road work.

The controlling headquarters of this set-up at site may be commanded by a Commander Engineers (Lt. Col) or by a Deputy Chief Engineer (Col.) or by a Chief Engineer (Brig.), depending on the financial commitment. A good guide to follow would be to put a Deputy Chief Engineer on a project costing more than one crore of rupees and a chief Engineer on a project costing more than five crores of rupees. The staff of the Project Commander would of course have to conform to the needs of each particular case and must be planned and approved before launching upon the project.

The local control of the Project Force must vest in the Formation Commander in whose area the project is located, and the Formation Commander must be made responsible for the progress of the project so that he feels it his responsibility to assist in all administrative matters.

INTERNATIONAL COMMISSION EOR SUPERVISION AND CONTROL IN VIET NAM

COMMANDER P. VASUDEVA, I.N.

I DO not know how much the above caption conveys to my colleagues in the Services but when I left India in March I had very vague notions of the functions of this body and no idea at all of its working. It has occurred to me that there may be others who are also in the same state of " blissful ignorance " and I have therefore ventured to write a few words for their benefit.

As is well known there is a contingent of officers of the three services from India who with the two other delegations from Canada and Poland carry out the work of the Commissions at various levels. Before however I go into the work of the Commission, it will perhaps be appropriate to say a few words about the situation that prevailed in Indo-China before the signing of the Geneva Agreements.

The Geneva settlement brought the hostilities in Indo-China to an end and sanctioned the establishment of three International Commissions for Supervision and Control in the States of Viet Nam, Cambodia and Laos.

THE BACKGROUND

Indo-China had been under the de facto occupation of the Japanese from the time of their attack on Pearl Harbour.

In 1945, with the defeat of Japan, Indo-China reverted to its old status of a colony of France with the help of Allied Forces.

During all these years however, a lot of water had flown under the Indo-China bridge. The hostility to Japanese occuption had given rise to hostility to foreign domination as such and a representative section of public opinion led by Ho Chi Minh in the North demanded a certain measure of self-government. The French tried to negotiate a settlement without in any way compromising their authority but these efforts yielded no results. Ho Chi Minh and his followers therefore decided in December 1946 to take to arms and launched a guerilla war against the French.

Indo-China had been in the grips of this war for more than 7 years and in July 1954 the war was still raging with all its ferocity between the French Union Forces and the Forces of the Democratic Republic of Viet Nam under Ho Chi Minh and his associates in the three States of Viet Nam, Cambodia and Laos. The prolonged hostilities between the two sides had resulted in misery, dislocation and devastation in the country and brought death to a large number of Frenchmen and Indo-Chinese. According to some authorities France had been bled white in this conflict despite vast material assistance from America, and a large section of public opinion in France was insisting on the termination of this long, weary and expensive war.

In order to put an end to this " bloody war " which had gone on ceaselessly for eight years, the meeting of the Foreign Ministers of the Big Four in Berlin in Jan./Feb. 1954 decided to call a conference on Indo-China at Geneva in May 1954 and to invite the People's Republic of China, the three States of Indo-China and the Democratic Republic of Viet Nam to take part in these deliberations.

At this time, the man at the helm of affairs in France was Mendes-France who was determined to find an amicable solution to the Indo-China problem by 20th July and it was largely due to his efforts and spirit of compromise that the Geneva Agreements for the States of Viet Nam, Cambodia and Laos came into existence which the three Commissions are administering today. On the war front, the battle of Dien Bien Phu in May 1954 brought a " coup-de-grace " to the long series of defeats to the French Forces. The Agreements for the three States were signed on 20th July 1954 but came in force in Viet Nam, Cambodia and Laos at 2400 hrs. on 22nd, 23rd and 22nd July respectively. India was invited to be the Chairman of the three International Commissions for Supervision and Control.

This article deals only with the working of the International Commission in Viet Nam and though machinery for co-ordination between the three commissions does exist at a higher level the scope of the article has been confined to the Commission in Viet Nam only.

THE SET-UP

The Commission for Viet Nam was established on 11th August 1954 and consists of three member States: India, Canada and Poland. On the highest level, the Commission is represented by the three Ambassadors, India's Ambassador being also the Chairman and Secretary General of the

Commission. The Headquarters of the Commission are at present located at Hanoi, the capital of North Viet Nam. A sub-office exists at Saigon. The International Commission carries out its work through the International Secretariat, the organisation of which is shown in Appendix "A" to this article.

Each Ambassador has his own Alternate and his own delegation headquarters. The Indian Alternate in Viet Nam is a Major-General and in the absence of the Chairman, he presides over the meetings of the International Commission. The Alternate Delegate has his own headquarters with necessary staff to administer, command and control the Indian armed forces contingent.

To facilitate the work of the Commission and to enable it to carry out its work, the Government of the Democratic Republic of Viet Nam and the French High Command have established Liaison Missions at Hanoi, in addition to providing Liaison officers with each team. The Commission, its sub-office and the teams are served by a communication net-work provided by a regiment of the Indian Army signal corps.

So much briefly for the set-up of the Commission. Now what are the chief provisions of the Geneva Agreement on the Cessation of Hostilities? What does the implementation or administration of the Agreement for Viet Nam imply and how is it carried out?

The Tasks

The Geneva Agreement lays down the Provisional Military Demarcation line at 17 Parallel and establishes a Demilitarised zone to a width of 5 kilometers on either side of the Demarcation line. It sets forth the principles and procedure governing implementation of the present Agreement and bans the introduction of fresh troops, military personnel, arms and ammunition in Viet Nam. The establishment of military bases under the control of a foreign power or entering into any military alliance by either party is prohibited.

The Commission has been charged with the supervision of the proper execution by the parties of the provisions of the Agreement and for this purpose it has to undertake tasks of control, inspection, investigation and observation, and particularly to:

(a) Control the movement of the armed forces of the two parties affected within the framework of the regroupment plan.

(b) Supervise the demarcation line between the regrouping areas and the demilitarised zone.

(c) Control the operation of releasing prisoners of war and civilian internees.

(d) Supervise at ports and airfields as well as along the frontiers the execution of the provisions of the Agreement regulating the introduction into the country of armed forces, military personnel and all kinds of arms, ammunition and war materials.

The other tasks relate to observation and reporting the implementation by the authorities of other articles of the Agreement on avoidance of reprisals or discrimination, guarantee of democratic liberties, freedom of movement from one regrouping area to the other, and safeguarding of public property.

The Commission carries out all these tasks through the medium of its teams. The teams are of two types:

(*a*) Fixed

(*b*) Mobile

It is to these two types of teams that most of the officers of the armed forces of the three states are appointed.

Fixed Teams

Fixed teams are located at various points in the North and South of the Demarcation line, consist of 2 delegates from each State and are required to exercise constant and continuous vigilance, observation and inspection in respect of movement of personnel and equipment at any time during day and night by visits to harbour, airfield, town, railway station and road junctions in their zone of action. Apart from their zone of action of approximately 10 kilometers, there is a sphere of action of the mobile element of the fixed team consisting of one delegate from each State. Within this sphere of action the mobile team or element formed out of the fixed team can move freely in pursuance of its mandatory tasks of control and inspection or for general observation. A weekly report on this task of control and inspection in their area is sent to the Commission by each fixed team. The Senior Indian Delegate is the Chairman of each fixed team.

Mobile Teams

These are teams sent out by the Commission when required for investigation of any incidents or allegations of violation of any provisions

of the agreement in a particular area. These teams have their own briefing instructions from the Commission for carrying out the specific task given to them and consist of one delegate from each State, the Indian being always the Chairman. The reports of fixed teams and mobile teams are discussed in the meetings of the International Commission which are held almost every day.

Role of the Chairman

From the above it may appear that the task of the teams is fairly simple but it is essential to realise the practical difficulties which sometimes hamper this work and make the role of the Chairman most difficult.

At times situations arise when the delegates do not see eye to eye with each other on various points or hold certain views which they are not prepared to compromise. Sometimes even the use of a simple word is subject to three different interpretations and quite an argument ensues.

The endeavour of the Chairman however is to send a report to the Commission which has a large measure of agreement and at the same time does not compromise the fundamental facts or basis of a particular issue. It is here that the tact, guidance and leadership of the Chairman come most useful—to find a solution which meets the view-points of all the delegates. It is not always possible to achieve this essential concord but the patience, ingenuity and tact which the Indian officers have shown have paid them handsome dividends.

Though I was not among the first batch of officers who came on this mission to Indo-China, I have yet heard reports of their role having been described as diplomatic by some authorities. If one may venture to voice an opinion, it is in some ways a more difficult and unhappy role. In a diplomatic assignment you will be well within your rights to draw your own inferences of interviews or incidents and report them to your country. Here you are sometimes bogged down by three different interpretations of the same thing and it takes a mighty effort to bring the others to the view-point which you consider to be right.

Moreover, according to the present arrangements the Chairman of the team is also responsible for all administration concerned with the requirements of the team. In a normal diplomatic assignment, the administration is carried out by the staff provided for the purpose and its efficiency can be controlled by the person administering it. This is not

the case in our present assignment as the administration has to be carried out through the means and facilities made available by the DRVN (Democratic Republic of Viet Nam) and the French authorities in their respective zones and the standard of efficiency which one may consider necessary cannot always be achieved.

Two Phases

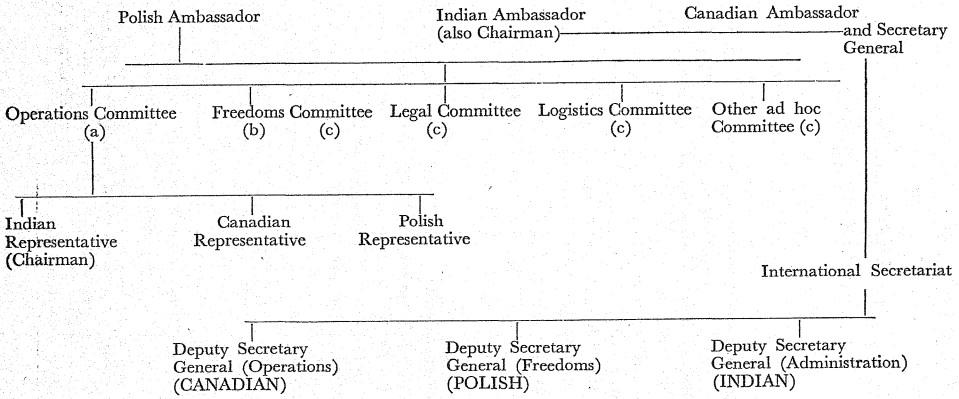
The first phase of the implementation of the Geneva Agreement for Viet Nam has been completed. Despite all the difficulties and problems which the Commission had to face in the administration of the Agreement, the first major task at the end of the 300 days' period—the regroupment of forces and the transfer of territories—has been completed. As our Chairman said in a Press statement: "The final phase of regrouping North and South of the provisional Demarcation line has been completed without incident of any sort and the credit for this performance must go mainly to the two parties and to some extent to the Commission and its delegations who had to put in a considerable amount of hard work to evolve formulae, modalities and methods by which the transfer and withdrawals could take place in an orderly and peaceful manner."

Apart from dealing with various stages of regroupment the Commission has since its inception helped the transfer of several hundreds of thousands of people to the region of their choice. It has despatched 104 mobile teams to investigate incidents of reprisals, restoration of democratic liberties, problems concerning freedom of movement and to supervise the enforcement of the ban on import of war materials in certain areas which are far away from the location of a fixed team. Thousands of prisoners of war and civil internees have been returned to their homes. This is by no means a mean achievement.

The second phase of the Commission's work still remains. This will be to ensure the necessary conditions for free elections for the restoration of unity and territorial integrity of Viet Nam. Consultations on this subject were to have been held between the competent representative authorities of the two zones from 20th July onwards. The existing tasks under the Geneva Agreement like enforcement of provisions about avoidance of reprisals, control of frontiers to enforce the ban on the import of military personnel, arms and munitions, and supervision of the provisional demarcation line will still continue.

Appendix "A"

ORGANISATION OF THE INTERNATIONAL COMMISSION FOR SUPERVISION IN VIET NAM



Note:

(a) This Committee is served by the Deputy Secretary General (Operations)

(b) This Committee is served by the Deputy Secretary General (Freedoms)

(c) Composition of all the Committees is the same as for the Operations Committee; that is to say one Indian, one Canadian and one Polish representative each with the Indian acting as Chairman.

CIVIL DEFENCE IN INDIA

THE NATURE OF THE PROBLEM

MAJOR M.R.P. VARMA

IN the last few years, Civil Defence has neither attracted nor received much attention in the minds of Government or the general public in India. This is in contrast to not only the Western powers and the USSR—all of whom are acutely aware of its vital importance—but also to neighbouring Pakistan with a nationwide organisation under a Director General of Civil Defence. Recent controversy over the efficacy of British Civil Defence programmes, debated in Westminster and the British Press, suggest that while we may not have been at all unwise in deferring our own Civil Defence programme, the necessity for such an organisation is inescapable in the modern world.

This article examines Civil Defence problems in relation to present day conditions in India and the general background of Civil Defence problems and the situations that arose during World War II in India and elsewhere.

Why should India, with her avowed aim of promoting an ever widening area of peace, with one of the smallest military forces in the world in relation to her large population, burden herself with more non-productive, recurrent expenditure in the form of Civil Defence forces? Mankind first combined and formed itself into groups, once tribal, today national, because it was found then, as now, that, on balance, there were more advantages and chances of survival despite the irksome duties incurred by the individual towards his group. One great advantage was greater protection compared to isolated individual action and mutual assistance in resisting the predatory attacks of other tribes or nations. Whatsoever the form of political leadership, the individual in return for the obligations he incurred expected protection against his foes. This was the prime duty of the leader or, today, of the government. The fulfilment of this role by

The writer of this article on Civil Defence problems in India was in London during some of the heaviest German air raids on that city during World War II when he took part in air raid precautions, fire fighting and other Civil Defence activities. After the war, he studied Civil Defence at the Defence Services Staff College, Wellington and the British Civil Defence Staff College, Sunningdale. (*Ed.*)

the modern state is probably more difficult than at any time in history on account of the total nature of modern war. The prosecution of a modern war necessitates the total mobilisation of its entire population, industry and resources, while war aims today are no less compromising than those of the medieval Turks towards Constantinople or of Rome towards Carthage. Unlike earlier wars, however, modern aircraft and missiles permit of total attack on all sections of the population while weapons are more devastating than ever before devised; however, technical and scientific development lag in inventing effective protection. The suffering to which civil populations may be subjected in war was demonstrated with terrible effectiveness by the air attacks against Germany during World War II as well as by the dropping of single, low powered atomic bombs on Hiroshima and Nagasaki.

To illustrate Civil Defence lessons one ought to consider the experience of an entire nation throughout the long course of World War II. Such a detailed survey is obviously beyond the present scope but the raid made on Hamburg in the summer of 1943 by British and US bomber aircraft is a classic example from which can be deduced many Civil Defence lessons applicable to India. Hamburg was a city of 1¾ million of whom one million were equipped and trained, in greater or lesser degree, for air raid precautions, fire fighting and Civil Defence. The City, in 1943, was prepared to meet air raids. In fact, it was a 'veteran', its Civil Defence organisation having been drastically overhauled after the Royal Air Force raid on Lubeck in early 1942. Hamburg has many waterways and thus there was plenty of water available for fire-fighting. There was a fully trained Civil Defence force 9,000 strong. The Royal Air Force assisted by the United States Air Force carried out a joint operation against Hamburg during the last week of July 1943. In a 10 days operation, three major concentrated raids took place in which some two and a half thousand tons of bombs were dropped; between the big raids there were several 'pot-boilers' to wear down the Civil Defence force. After the war the results of this raid were studied by British and United States Operational Research teams. The raids were considered equivalent to one atomic bomb. The damage was stupendous on any standards: nearly 33,000 dead were buried and bodies were still being found 6 months later; there were 40,000 wounded. The total casualty list eventually exceeded 100,000. Over a million of the inhabitants left the city and both the normal administrative arrangements and the Civil Defence force failed to cope with the situation. In one part of the city a "fire-storm" developed

as a result of the failure to limit the size and spread of fires. All public services broke down and none of the normal amenities of a city functioned: piped water failed, sewage pipes were fractured, gas and electricity supplies failed, telephonic communication ceased. 80 per cent of the hospital beds were destroyed as was 60 per cent of the living accommodation in the city. Thus, although the Germans had a Civil Defence organisation it proved inadequate to meet the threat; the cause of this lies probably in the German failure to realise the potentiality of air attack. On the other hand, in Great Britain, the Civil Defence organisation satisfied the demands made on it under enemy air attacks.

What was the experience of Japan? With a grandiose war plan based on joint sea and air power, the Japanese were brought to the point of defeat by these very means well before the first atomic bomb was dropped. Air power was not brought to bear on Japan proper before the end of 1944 and only then did the Japanese start to organise their Civil Defence. They are a stoical nation, used to hardships and disasters in their volcanic islands within the earthquake belt; they were intensely patriotic and unquestioning in their acceptance of their war government. In the first six months of 1945 every one of Japan's sixty-six cities of any economic significance was attacked. Destruction ranged from ninety to twenty-five per cent while half the area of each city was, in the words of the United States Strategic Bombing Survey, 'quite literally levelled'. We have no conception of this kind of thing in India nor of the effect it would have on civilian morale. Those who were with the occupation forces in Japan or Germany after the surrenders will realise the utter devastation that was achieved even by high explosive and incendiary bombing. Thus, within six months, as much through a lack of a Civil Defence organisation as anything else, Japan lost the war. "Civil Defence cannot of itself win a war but lack of a Civil Defence organisation can certainly lose one."

What was our experience in the last war? It was headline news when the Japanese reached the Eastern frontiers of the then British Indian Empire but soon after it became clear that the high tide of the Japanese conquest had passed, and with the successful outcome of the battle of Imphal, the war receded. Thus we in India have had no experience of actual Civil Defence problems unless we include the two or three air raids on Calcutta and the East coast. These were not really even token raids but they raised doubts regarding the morale of the civil population that were very real at the time. Fortunately the raids were slight and soon ceased; otherwise due to civilian panic the continued functioning of the

hinterland and communication zone behind the Army in Burma might have been endangered. As so often happens in war, we 'got away with it'; next time, alone perhaps, we might not be so lucky.

A modern democratic government has not achieved reasonable military security, either for its inhabitants or the prosecution of a war, unless and until its defence preparations take account of the defence and protection of its civil population and industry. The fact that India's foreign policy is based not merely on the eschewing of foreign alliance but refusal to entertain thoughts of any kind of war, far from detracting from, reinforces the argument in favour of Civil Defence forces. Preparations to meet aerial attack must necessarily be taken well beforehand and what could be less misconstruable and specifically defensive than Civil Defence preparations?

The fact that no nation, now or ever before, however pacific its policies may be, has been able to dispense with armed force and the continued maintenance by India of its three Services to protect its borders as well as the course of events over the past eight years shows quite clearly that at least defensive war plans must exist. And exist they do, including provision for certain Civil Defence measures; nowhere, however, is there a comprehensive Civil Defence force in being although several states have made a beginning.

The nations of South East Asia have but recently achieved sovereign independence and their existing states of development leave them actually and relatively weak. If attacked by a militarist neighbour, or some superior outside power, their victory over aggression would depend upon the fortitude and resilience of the general civil population, their morale and their willingness to continue to produce war materials and generally sustain the fighting services. Large parts of such countries, including our own, might well be initially over-run; for any enemy would have the initiative and would not venture to attack as large a country as India without at least a heavy initial concentration of forces. Under these circumstances continued resistance in the areas over-run, if not in the country as a whole, would depend on the general faith of the population in the government of the day and the inner conviction of ultimate victory. This I term the concept of 'Resistance Potential' and it is a moral force which in local international politics in South East Asia exercises a stronger deterrent to war than any military or diplomatic activity.

This 'Resistance Potential' is founded on something more positive

than vague patriotism even though it is itself intangible and difficult to assess. It implies a rational belief in the ethics of ones country as well as in ultimate victory. It engenders a willingness to endure privations, carry out guerrilla operations and the refusal to co-operate with an occupying power. The first step in creating this 'Resistance Potential' is to take effective measures to prevent the kind of panic and dismay that followed the appearance of Japanese aircraft over Calcutta, rumours of the Japanese fleet operating in the Bay of Bengal, the Partition of India and periodical rumours of imminent war between India and Pakistan between 1948 and 1951.

Rumour, alarm and panic are all concomitants of low morale and poor 'Resistance Potential'. Once established they spread like wildfire and soon assume uncontrollable proportions which could bring about defeat more quickly and surely than could military operations, as was the case in France in 1940. To combat this great danger, the general population must be taken into confidence, tutored, afforded some measure of protection, organised and disciplined. Then when the calamity occurs some control will be possible. The preparatory work must however be undertaken whilst there is still time. Rumour, alarm and panic are all fiery steeds who will bolt and run wild unless the stable door is well secured beforehand. Paper plans, far from being of use, would serve merely to add fuel to an already uncontrollable fire. What is needed, and it is unavoidable, is the establishment in peace, while there is still time, of a nucleus Civil Defence force which will inculcate a sense of social responsibility and an awareness of the larger issues involved, as well as the means of self protection in the mass of the population.

SOME IMPRESSIONS OF THE STAFF COLLEGE AT CAMBERLEY

LIEUT. COLONEL M.R. RAJWADE, M.C.

THE object of sending officers of the Indian Army to attend courses of instruction in foreign countries is mainly to give them an opportunity to study current military thought and practice and acquire knowledge of the latest equipment and techniques. Further, it affords them a chance of comparing different methods of instruction, and lastly gives them an opportunity to acquire valuable contacts.

As far as the current military thought and practice and the latest equipment and techniques are concerned, a large number of books are published from time to time, whilst precis and pamphlets can also normally be obtained. Secondly, the contacts one makes cannot form the subject matter of an article for public consumption. The aim of this paper is to describe some impressions formed by the author concerning certain aspects of the organisation of, selection of instructors at, and the instructional methods followed by the Army Staff College in the UK. It is hoped that these impressions will provide some food for thought and enable the reader to compare conditions in our own schools with those of this particular institution and thereby help him to suggest improvements.

ORGANISATION AND SYLLABUS

The Staff College at Camberley is organised into a HQ and three Divisions. The former comprises the Commandant, Deputy Commandant, GSO I Coord, a RAF Officer, DAAQMG and the normal clerical and Administrative Staff. Each Division consists of a GSO I (a Colonel) and approximately eight GSO II Instructors (Lt. Cols.) with the necessary Administrative Staff attached to it. Canada and Australia each have an officer on the Instructional Staff whilst Liaison Officers are posted from the US and French Armies.

During the Course I had plenty of opportunities to discuss freely with the Instructors, the methods of selection, the normal qualifications required, percentage of representation of Arms/Services and various other problems connected with the appointment of instructors. Here are some of the impressions I formed. Apart from the Commandant and the

Deputy Commandant, the next important appointment is that of a GSO I. As I have mentioned earlier, there are four GSOs I, three in charge of the Divisions and the fourth one in charge of Co-ordination. Normally they change the appointment of GSO I Coord every year with that of a Division. These GSOs I and the other Lt. Col. GSOs 2 are normally selected only from the Infantry, Armoured Corps, Engineers and Artillery. They do, however, have one Lt. Col. each from the Signals and ASC.

The standard of selection is naturally extremely high as they quite rightly believe that the entire functioning of the college depends on the standard of its instructors. For example, let us analyse the qualifications of a typical Lt. Col. Instructor from the Infantry. Apart from being a Graduate of the Staff College, he would in addition have distinguished himself for Operational Service, carried out successfully a Staff appointment in a Division as well as at the War Office, commanded a Battalion well for a normal tenure of two or three years and successfully completed the Senior Officers' Course. A large number of these Instructors, apart from being good games players, have some other active interest or hobby. To quote a few examples, during 1954, on the Instructional Staff there was an officer who had led the 1953 Everest Expedition, another was holder of the British Gliding Record, a third had represented the Army in the Shooting Competition at Bisley and yet a fourth was a renowned author.

The Course is approximately of 11 months' duration and is based on six terms, the first two being each of $2\frac{1}{2}$ months whilst the remainder are approximately six weeks each. The earlier part of the Course is devoted to instruction in those basic subjects in which it is necessary that all officers should acquire a common minimum standard of military knowledge. Subsequent instruction is then based upon this foundation. Starting from the second term a study is made of the employment of all types of Divisions, including such Arms from outside the Division as are normally available to support it in battle, in all phases of war. The influence of the Air Power in all its forms upon land Operations is studied throughout the Course.

During the fourth term the whole Course is taken out on RN Ships to Normandy to tour certain selected battlefields. Our Course of 1954 was extremely lucky in that we were also sent out as Umpires for the Northern Army Group inter-Allied Atomic Exercise BATTLE ROYAL during September in Germany.

Two joint exercises are carried out with the RAF Staff College, Bracknell, in the course of one week in the fifth term. Again during the latter part of the Course, a joint Amphibious exercise is carried out with the RN Staff College, Greenwich. The Civil Defence Staff College Sunningdale spend one day at Camberley towards the end of the year when discussions are held designed to study the main problems of Civil Defence and the Civil Defence Organisation.

The final term, when only the British Service and Commonwealth Officers are allowed to continue, is devoted entirely to the study of Future War, Atomics, Civil Defence and addresses by the leading Military figures not only in the UK but from all the NATO Countries including the USA.

Conduct Of Instruction

The aim of the Course is to train for war and in so doing fit officers for Second Grade Staff appointments and with further experience for command. Throughout the Course the instruction is designed to teach students a sound method of approach to military problems of all kinds, and to ensure that they acquire the ability to obtain and assess the detailed information necessary to solve a problem and to present a solution quickly, clearly and concisely. Particular attention is paid to the training of officers to work as one of a team.

The framework of Staff College instruction is the discussion of precis and associated demonstrations in syndicates of 10 students and one Directing Staff. In addition, the study of precis/pamphlets, indoor and outdoor demonstrations, films and visits play an important part. A very large number of outdoor exercises are held and involve both individual and syndicate work. Lectures rarely form part of the basic instruction but are normally devoted to topics of general educational value or to provide background information for certain specialised subjects.

Relationship Amongst Students

The number of students attending the Course is approximately 180. Out of these 140 are British Service Officers and the rest Commonwealth and Foreign Officers. The majority of the British Officers are those who have obtained either a competitive or a qualifying vacancy in the Entrance Examination. A few vacancies on each Course are reserved to be filled by direct nomination. The object of this is to cater for those really first rate regimental officers who have been unlucky in not qualifying in the

examination. It should, however, be noticed that no nominations are made from those who have merely become overage to take the examination but only from those Officers who possess distinguished service in the field either in a Regiment or on the Staff. The standard of the Entrance Examination is broadly speaking the same as the one held in our country. The age and service group of the average officer is distinctly higher and the percentage of students who have seen Operational Service is also comparatively large. Even the less junior officers have seen some service in Korea or Malaya—it is lucky for them that their Army does get opportunities of being employed on its proper roles !

Although graduation from the Staff College is much sought after, officers do not neglect regimental service. The reasons for this correct approach are many. First of all distinguished regimental service is held in high esteem and reasonable advancement is more or less guaranteed for such officers. Secondly, the conditions of eligibility for taking the Entrance Examination are comparatively more difficult and finally few suffer from the curse of being over-ambitious. The result is that a comparatively small number of officers get admission to the College and that too at the correct age after having served well in units. With this background it is easy to see that the relationship between the students is extremely cordial and friendly. Service and competitive selection guarantee that the officers are by and large mature and responsible and thus few show any signs of being grading-conscious. The impression I gathered was that everyone really tried hard to learn something instead of merely wasting time in impressing the Directing Staff. There were instances when, if an individual was not able to contribute anything towards a particular syndicate problem, he did not hesitate to say so openly. That does show a really correct approach to a Course of this nature.

During the fifth term, that is one and a half months before the termination of the Course, the students receive their postings. I had occasion to speak to a large number of officers, particularly those who were in my own Division. I was most surprised to find that not one officer felt that he had been posted to an appointment he did not deserve or expect. This not only goes a long way to produce contentment amongst the officers but speaks very highly of the way in which their careers are planned and also reflects on the efficiency of their MS Branch.

Relationship Between Instructors and Students

If an Army School or for that matter any educational establishment is to fulfil its aim of carrying out instruction successfully, then it is imperative

that a very correct relationship must exist between the Instructors and the students. It stands to reason that the Directing Staff should play the major role. It is they who set an example, gain the confidence of the students and who create an atmosphere in which students can not only learn but make a positive contribution. I feel that to a large extent these conditions did exist at the Staff College and the main factor which contributed to it was the really high standard of the Instructors. As has already been mentioned earlier, the greatest attention is paid to the selection of the Directing Staff and a very high standard is demanded of them.

It was quite common, during discussions, for an instructor to let a student speak for as long as he wanted and put forward any argument he considered necessary. Only during the summing up phase, would the instructor give his own opinions, which, one was at liberty to accept or turn down. Then again during discussions on tactical problems, the instructors would never try to force a rigid solution but would put forward a suggested course of action. Furthermore, one never heard an instructor cite examples from his own operational experience in order to wriggle out of a tricky tactical discussion. It would have been easy and yet wrong for them to have exploited their advantage of battle experience.

Throughout the Course, one never felt for a moment that questions were asked merely to grade one. Questions were asked to find out what you knew or had learnt and if you did not know the answer, they were explained in detail. There were never any instances of sarcasm on the part of the Directing Staff even during the later stages of the Course and even when at times the most elementary and stupid questions were put forward by the students.

Relations between the Instructors and the students during non-working hours were extremely friendly. There was no officialdom, nor did the instructors suffer from a sense of false pride. It was heartening to note that the practice of constant 'Sirring' is not very prevalent in the British Army. This friendly attitude on the part of the Instructors was all the more creditable since the service and experience difference between them and the students was considerable—the average year of Commission of the Lt Col Instructor being 1938.

No description of an establishment of this nature is complete without a mention of the social life. At the very outset let me point out that compared with practically any School or College in this country, the number of

social functions at the Staff College was extremely small. To be exact we had two dances and two cocktail parties throughout the whole year. No one bothered whether you attended the dances or not but you were expected to be present for one of the cocktail parties. It was optional for the syndicates to have a party for the Directing Staff at the end of each term. As far as calling is concerned, the students were told at the beginning of the Course that they were not expected to call on any of the instructors. However, the Directing Staff were at liberty to invite any of the students if they wished. By and large, students had their own restricted parties and that too after the end of the fourth term. However, one made by far the best friends on the sports fields and there were plenty of opportunities as games were encouraged a lot. I also feel that if one was a good games player, it did definitely count in one's favour. Lastly, a word about the wives of the Directing Staff. I was genuinely impressed with their very correct behaviour and attitude of complete non-interference with anything official. One only saw them very occasionally either shopping or if one was invited to a party, in the capacity of charming hostesses.

Conclusion

Whilst reading the above impressions, one might be tempted to accuse me of over-rating this particular institution. No one can seriously claim that any institution of this kind is without certain drawbacks. However, the aim has been to highlight only the good points with the main object of providing the reader with material for comparison. Although for purposes of this article, only the Staff College has been taken into consideration, the basic principles would apply equally to any other Military School.

It is an accepted fact that due to the various differences that exist between any two Armies, conditions peculiar to one cannot be blindly applied to the other. However, in order that any School of Instruction carries out its role successfully, certain essential conditions must be fulfilled. First of all Instructors must be very carefully selected from the very best material available. Secondly, the right atmosphere has to be created and relationship amongst students and between the instructors and the students developed, where the students will not only learn but also contribute to the instruction given. Lastly, the authorities must have a clear conception regarding the importance they should attach to the social attributes of students as compared with their professional ability.

WHAT IS THE IMPORTANCE OF DRILL IN TRAINING?

MAJOR J. NAZARETH

THE aim of all training is to prepare the soldier to perform the duties required of him in war. Since these duties demand the exercise of his spiritual, mental and physical faculties, in his training all these qualities must be developed. There are innumerable means of training one can employ to do so, but it is commonsense that we should use only those which fulfil the aim most effectively and in the shortest time. We could teach the soldier to do crossword puzzles which will sharpen his mental faculties, or to stand on his head, which some argue is highly conducive to physical fitness, but because these excellent feats do not contribute substantially and effectively to the aim, we do not indulge in them. Our present methods of training have evolved from the past and some of them contain useless accretions which do not further the aim of training at present. From time to time these methods must be tested for their validity under conditions of modern war; also they must be pruned of all practices that are not applicable today. Drill is one of the oldest methods of training adopted by armies. Some of our ideas on drill are a hundred years out of date; we persist in them through force of tradition and sentiment and are not able to justify them by a dispassionate analysis. The aim of this article is to examine the real value of drill in training. The drill referred to is general drill.

Many specious arguments are used to defend our present notions on drill. An instance of confused thinking is the hackneyed contention that the British guardsman is excellent in drill and excellent in war. Therefore it is inferred that drill is largely responsible for his efficiency. The logical fallacy is an obvious one—*Post hoc ergo propter hoc.* Many units have performed excellently in war without having a great reputation for drill and other units known for good drill are unfit for war. The Boers who were undrilled troops were able to stand up in battle to the drilled soldiery of the largest empire in the world. The troops of George Washington were less drilled than the British Regulars and yet won the War of American Independence. Irregular troops are as a rule less drilled than the regulars, yet are not considered inferior because of it. The contribution of drill

to the fighting efficiency of the soldier should be analysed and not taken for granted.

From the earliest times armies have been drilled. Drilling and soldiering have been inseparable. The aim of drill has been to ensure speed and co-ordination of movement and fire power to achieve victory on the battlefield. It was also the chief aid of overcoming fear. All drill was utilitarian. Training in drill was training in war. Drill trained the soldier to perform the physical actions which he was required to execute in battle. It also gave him the correct mental frame of mind for the battle. When troops fought in phalanx formation it was most important that they kept in step and observed correct dressing in the advance to prevent breaches into their ranks. Where action was by shock of soldiers marching shoulder to shoulder, the more mechanical the movement, the more irresistible the effect. Frederick the Great owed some of his finest victories to the drill of his troops. His Army was capable of marching right across the enemy's front and then deploying and rolling up their distant flank before they could conform to his moves. The battle of Leuthen is an example. Gustavus Adolphus drilled his soldiers to fire in relays and thereby increased his fire power. The appropriateness of the drilling then used to the requirements of war is obvious. The same drill was used with little alteration for ceremonials and display. Therefore there was no waste of training time in teaching separate drills for battle and ceremonial. Drill training gave the soldier the correct mental attitude and proficiency in battle movements.

The true modern equivalent of all these drills is our battle drills and the drills we employ to achieve skill in handling of weapons such as gun drill, mortar drill and machine-gun drill. Close order drill is an antiquated legacy we have inherited from the past. Its usefulness has diminished and today is confined to providing some spiritual values which I shall discuss later. That it is of some use is not denied but it is largely a waste of time and has been given exaggerated importance. From being identical in early days battle drill and close order drill are today entirely separate. One is training for war the other is training to inculcate some vague spiritual qualities. The tactical formation has no place in ceremonial drill. The ability of a formation to destroy the enemy is in its fire power. Our drill formation does not represent our fire power except for the rifle which also is handled in a manner to nullify its fire power; instead we prefer to parade our companies of cannon fodder.

Because close order drill is not related to battle drill it contains anachronistic practices. It creates mental rigidity by exacting unthinking obedience. This conflicts with the initiative required from the soldier. In weapon training the soldier is taught that the rifle is his best friend; in drill he proceeds to rough-handle his rifle so that it is of no use to him in accurate shooting. No marksman will ever care to shoot with a rifle after it has suffered from a ceremonial parade. In weapon training the soldier is encouraged to look after his rifle; in drill he is considered smart if he can make it produce maximum noise and in addition to "bashing it" smartly in all his movements, he indulges in practices, admittedly unauthorized, of putting pebbles in the magazine and banging the rifle as if it were a pike. How can he be blamed for this since his officers seek to give him discipline with drill movements of the pike period !

Because of tradition we persist in giving drill its old importance; related to modern conditions that importance is exaggerated. There are some who consider a means to an end as an end in itself. To them drill, whitewash, blanco and brasso is a fetish. To satisfy them much unit training time is spent in veneer. A euphemism for "whitewash inspections" is "administration inspections". These "administration inspections" are confined to administration in the lines and not in the field. Also these minds prefer to judge the fitness of a unit from its performance on ceremonial parade which as we have seen was appropriate in the past. There is no doubt that wrong emphasis on drill is responsible for this mentality. The worship of drill is responsible for the 'nit-picking' of trivialties that goes on and disregard of important issues.

The chief justification for drill today is that it produces certain mental qualities in the soldier such as discipline, esprit de corps and morale. As these qualities are very necessary for the spiritual attitude of the soldier this argument is not to be lightly dismissed. However the first point that should be stated here is that were we to bring drill more in line with battle drill we could still get these mental qualities. Let us now analyse the claims made for drill.

Our drill pamphlets claim "good drill means good discipline" and "drill is the bedrock of discipline". Like all cliches these tend to be accepted as profound wisdom. Drill does not mean the same thing now as it meant to armies one hundred and fifty years ago. In the old days the general required unthinking obedience from his soldiers. To this end they were half hypnotised by habit so that they could be flung straight into the

ranks of the enemy. By constant drilling, reason and initiative were killed and obedience became instinctive, the mind of the soldier was chloroformed and the commander directly controlled his limbs. The automaton was the best soldier and constant drilling produced the automaton. "Theirs was not to reason why; Theirs was but to do and die". Under such conditions it was true that "drill is the bedrock of discipline". Since it is accepted that modern war primarily requires the discipline of the mind rather than of the body, the discipline of comradeship and honour rather than the discipline of unthinking obedience, there is no sense in identifying drill with discipline. If we accept Wavell's ideal of an infantryman, that he should be a "Cat burglar, gunman and poacher", drill far from producing this ideal has the contrary effect by teaching mental rigidity.

It is also claimed that drill 'aids in disciplinary training by instilling habits of precision and response to the leader's orders". This is true but is an attempt at over-simplification. Habits of precision and response to leader's orders have to be cultivated throughout the soldier's career in everything he does and in every order he has to execute. Without the aid of drill these habits are cultivated by good leadership and in spite of drill these habits will not be formed if the officer confines the checking of his orders to the drill square. Therefore the orders given out at drill are merely some of the many orders issued all of which should be carried out with precision. The fact that drill orders are barked out does not lend them any greater force for forming habits of precision.

The greatest advantage of drill is that it builds up morale. It gives a soldier pride in himself and in his unit especially in a ceremonial parade. It cannot be gainsaid that these are very important benefits. Drill fits a man into a unit, it does not make him part of a team. Therefore perhaps in the early stages of training of a soldier, it would be useful. Since it fosters unthinking obedience it should be used sparingly. It is incorrect to identify drill with discipline. Lastly it would be most useful to devise a new form of drill as akin to battle drill as possible. For example, a ceremonial parade of all the mortar platoons in a division carrying out mortar drill together. This would give us all the advantages of drill and eliminate its present disadvantages. If we know what drill can do for us we can make it fit better into the pattern of training. At present drill is the most convenient method of filling in all the blank spaces in a training programme.

UMED HAI

MAJOR F.G. HARDEN

SOME five years ago, I found myself, with an hour or more to spend, in a strange country town. I noticed a second-hand book shop and strolled in to kill time, also on the chance that I might conceivably pick up something I could read.

It was a very old place and actually consisted of three adjacent houses built, one, perhaps two, centuries ago. One wandered through rooms up steps, down steps, ascended and descended rickety stairs, in order to investigate the thousands of volumes, neatly arranged in the dusty wall-shelves.

Here and there hung various nondescript pictures, presumably the contents of some one-time private library.

One caught my eye. Soldiers—better still sepoys! I unhooked and carried it to the window least enriched by cobwebs.

A large water-colour, signed and dated 1825. It showed, grouped near a Hindu temple, a stone Brahminy Bull, a naik and three Grenadier sepoys of the different Bombay army regiments.

As I paid for it, I enquired if there were any others like it. I had hopes of a pair, or possibly the remainder of a series. "No", said the shop owner, a small man, perhaps not quite as old as his building, "I have no others".

I took it home to decorate my study—just one more relic of the armies of 'Jan Coompanie Bahadur'.

Last week, for the second time in my life, I had occasion again to pass through the same fascinating old town. Something suggested that I should stop and re-visit the antique book shop.

Once more, I wandered over its uneven floors. Nothing seemed to have changed. The same lizard (I think I mean spider ?) was still watching the same crack in the wall-plaster. Again I failed to discover any book that could interest.

In the last room an assistant was moving a pile of large folios—maps perhaps, or bound volumes of old newspapers ? As he lifted these, a framed picture with red figures was uncovered. I closed in on it. The same signature and date. A pair to my previous find. This time, three Indian officers and an orderly—all from Bombay regiments—the background one of the hill forts of the Ghats : some prize !

"Have you any more sepoy pictures ?", I again enquired. "No, Sir", replied the ancient. "This has been here as long as I can remember. I did not know they were sepoys." And why should he—the stay-at-home old book-worm ?

Now I am always trying to increase my knowledge of the uniforms, traditions etc of the armies of India, hence my delight at capturing these two old paintings. Though not executed by any trained artist, they bear the unmistakable stamp of an amateur who is intent in recording, correctly, the uniform of his day.

I believe that more accurate information of the past can be gleaned from such original sketches, made by an amateur on the spot, than from the work of professional artists who, too often, cloak their lack of knowlege of the small details under faulty guess-work.

The eight figures show :—

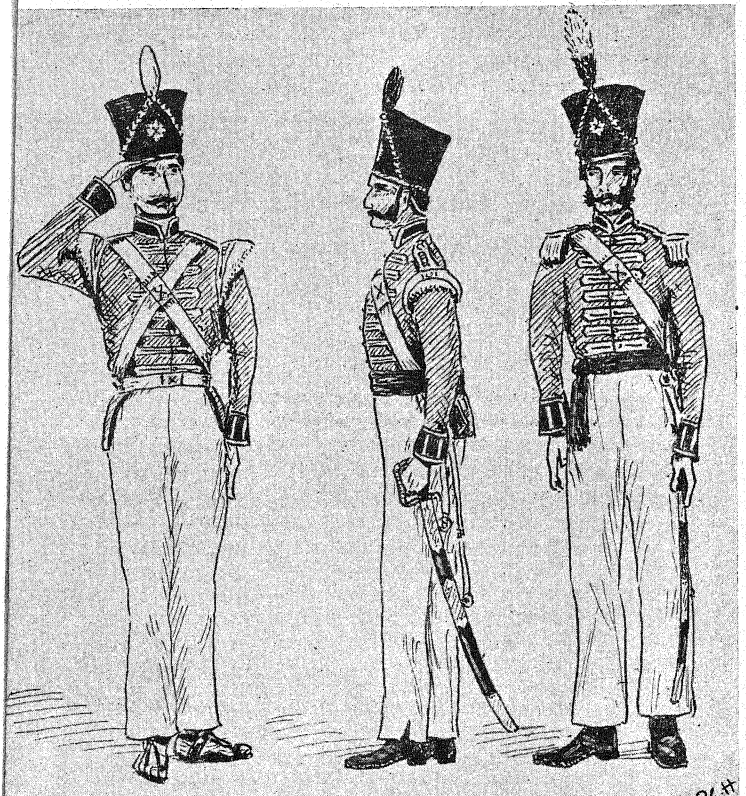
The Subedar Major, a jemadar of the Light company and a sepoy of the Grenadier company—all of the 10th Bombay Infantry (became 3/Maratta Light Infantry),

A jemadar and a sepoy of the 12th Bombay Infantry (became 5/Grenadiers),

A Light company sepoy of the 22nd Bombay Infantry (now 3/Rajputana Rifles),

A naik and sepoy, grenadiers of Bombay regiments, long disbanded.

For readers who may be puzzled, we should explain that, from early days, a battalion of Indian Infantry included two 'Grenadier' companies, consisting of the tallest and strongest sepoys. These were stationed on the flanks, when in line. After 1808, a 'Light Infantry' company was introduced and eventually replaced, on the left of the line, the second grenadier company. Grenadiers led the advance and assault. The light company consisted of the most agile men and were trained as skirmishers.


Grenadier Sepoy
Light Coy Jemadar
Subadar Major
1825. 10TH BOMBAY INFANTRY.

Here are reproduced from the old paintings, specimens of all three categories of infantry which show the distinctions in dress of each type, about one hundred and thirty years ago.

Points which are to be noticed include :—

1. The Subedar Major, like a field-officer, wears gold epaulettes on each shoulder (the sirdars of the centre companies would be wearing one only, on the right shoulder). His basket hat (officially called cap) has yellow binding and plaited cords.
2. The Jemadar wears gold ' wings ' on his shoulders, the feather hackle on his cap is green, as is the binding and cord : all denoting that he is of the light company. A strap, worn behind the head, is intended to keep the clumsy head-dress in place when performing ' Light Infantry Drill ' at the double !
3. The grenadier sepoy is distinguished by his white hackle and shoulder-wings.

Note. N.C.O. and sepoys of the centre companies would have shoulder-straps terminating in white tufts, instead of wings, and a white-over-red hackle (like the Subedar Major).

A sepoy of the light company, 22nd Bombay Infantry, (not illustrated here) is dressed like the grenadier of the 10th, except that, in place of a white hackle, he has a green ball-tuft, on the top-right of his cap, and green cords. On both his brass breast-plate and cap a bugle is placed over the numeral XXII. His collar and cuffs are buff, the regimental facings, whereas those of the 10th are black.

As the three figures in the paintings are of the 10th Bombay Infantry, we might suspect that the artist served in this famous old regiment.

I trust that I may, some day, find myself once again in the sleepy old town. I shall, surely, re-enter that quaint shop of the last century with high hope in my heart. *Umed Hai !*

THE PRESERVATION OF WILD LIFE IN INDIA

"AMRITAGHATA"

MANKIND is blessed with an abundance of natural resources. The exploitation of these resources tends to upset nature's environmental equilibrium. This either causes alarming over-production, as happened when the rabbit was introduced into Australia, or may result in the total extinction of a species. Countries which are scientifically and technically advanced have taken steps to ensure that their natural wealth is conserved. Even the most common minerals are not wasted. Wild life preservation is one of the forms of activity designed to conserve a nation's natural wealth.

India has a wonderful range of over 500 varieties of mammals alone, not to speak of her rich resources of bird, insect and plant life. No natural resource is more sensitive to change than our wild life and none has suffered more from lack of conservation. In the last 50 years, certain specimens have actually been exterminated.

FACTORS NECESSITATING CONSERVATION

Wild life is an integral part of our forests. The reduction of any one species of animal, insect, bird or plant tends to an imbalance which often has repercussions on human life. A shortage of pigs and deer will force tigers and panthers to depend on domestic cattle for food. There are signs that the depredations on domestic animals from adjacent reserves are increasing. Then again there are species of insectivorous birds which prey on pest of agricultural crops. Apart from this utilitarian value of wild life preservation, there is the breath-taking beauty of the species, which are not only often rare, but also characteristic of a country. To allow a species to die out by default would be a gesture of indifference for which future generations would find it difficult to forgive us.

The 1951 Census indicated that the Indian population will increase by 40% within the next 30 years. This increase of population inevitably means an extension of the cultivated area and the clearance of forest and grasslands to meet the increasing demands of food production. The problem is increased by the large-scale migration of refugees after partition.

Large tracts of jungle lands have had to be cleared to rehabilitate these displaced persons. The problem is accentuated by the opening of railways and roads through virgin land. All these activities are killing off large numbers of wild creatures.

Then there is the indiscriminate shikari, who neither abides by the closed-season rule nor any other of the shikar restrictions. He prefers to shoot at night with a powerful searchlight or take up a position in a machan overlooking either the last fresh water pond or salt-lick, which all animals are forced to use. Sometimes deer are chased and overtaken in fast jeeps and fish are dynamited in rivers. This type (one cannot use the word 'sportsman') is either determined to get his kill at any price, because he has a blood lust or because he is a professional killer who wishes to sell his kill as a trophy or for its meat value. It is surprising how many of us unconsciously connive at, if not actually take part in such activities, without realising the harm we may be doing.

Another source of damage is the local shikari, who nets and traps his game all the year round. Here again, how often we connive at this practice unconsciously. Every time we are offered partridge or quail in a restaurant, we should appreciate how this game has reached the pot. The outcome of this can only be tragic. Mhow, which was once one of the favourite 'game' cantonments is today almost barren of game due to indiscriminate netting by locals, who are well paid by local restaurant managers, catering for the large demand for game both in and out of season. Bigger game has also suffered. One could once meet deer and panther a few miles out of Mhow. These are now difficult to obtain even in reserve forests, due to the vicious activities of a handful of unsporting shikaris, one of whom openly boasted of how he had killed over fifty panthers in three years.

The Damage

These depredations, so long as they affect prolific breeds can be adjusted almost in one season by a few restrictions. There is little danger of such species being exterminated. This is unfortunately not the case with all species. An all-India survey by the Indian Board of wild life indicates that some of our characteristic and most beautiful species are facing total extinction if we do not take immediate steps to protect them.

The Great Indian One-horned Rhinoceros, probably the largest of all existing rhinoceros, was once extensively distributed in the Indian

peninsula. Today it is restricted to parts of north-east India. The latest report in 1954 states that there are 547 in Assam, 43 in Bengal, 2 in Bihar and 48 in Nepal. The Gaur or Indian Bison is another majestic animal which is becoming rare, not only because of indiscriminate shooting at salt-licks but due to its susceptibility to disease spread by domestic cattle or buffaloes. The wild buffalo, though differing little in general appearance from the tame buffalo, except that it is a sleeker and more robust looking animal, is also being seriously affected by domestic animals.

The Swamp Deer, which unlike the Sambar, confidingly frequents more open places becomes an easy target for poachers, who find its meat value comparing favourably to that of the Hog Deer. The goat antelopes, the Serow and Goral, both also require protection from meat hunters. The Thamin or Brow-antlered Deer, was India's most beautiful deer ; nearly 4 feet high at the withers, the length of its antlers was 42 inches. No trace can be found of this beautiful creature by the Forest Department in Manipur, where these once existed in fair numbers. Suggestions have been made to re-introduce this species from Burma, but it will never be the same again, since the Burma Brow-antlered Deer is a different specimen.

Only two genera of pigs are found in India—the wild Boar and Pigmy Hog. The latter type is a diminutive pig but is reported to have disappeared from the foot-hills of Bhutan.

The Asiatic Lion was once found over the whole of Northern and Central India as far south as the Narbada. Today it is restricted to the Gir Forest in Kathiawar, where the laudable efforts of the Junagadh authorities saved them from extinction. The Clouded Leopard is however facing progressive reduction. The markings of a Clouded Leopard give it a beauty and distinction equalled by few of its tribe. The upper canine teeth of this species present the nearest approach among living cats to the great tusks of the extinct Sabre-toothed tiger. The Mysore conference of the Indian Board of wild life recommended that beautiful animal for full protection. It is hoped that its preference for thick forests will prevent its becoming extinct.

Indian mammals are not the only wild life that faces extinction. The opening of large tracts of grassland for cultivation and grazing, has made the Bengal Floriken, a beautiful large long-legged bird, become rare. A number still exist at the Kaziranga wild life sanctuary in Assam.

Several types of duck also face extinction. It is regrettable that there is no authentic evidence of the Pink-headed Duck for the last few years. Reptiles too have to be protected. The Monitor Lizard and Python are already protected in some states, but elsewhere their destruction for trade in their skins goes on undetected.

Legislation

The general complaint today, is not so much of the lack of effective legislation as the lack of enforcement of existing legislation. Machinery exists for preserving wild life all over India but this has fallen into disuse through neglect. For example the Bombay Act of 1951 is generally accepted as an excellent piece of legislation but experts wonder if this can be enforced. As it stands, anyone who shoots a Bul-bul in his back garden can be prosecuted.

Under present conditions, the detection of an offender is difficult and the charges hard to substantiate. If the case is proven, the Magistrate imposes a fine of Rs. 60/- for say a Sambar, which is valued at Rs. 400/-. This is because the rates of fines were fixed, under the Wild Birds and Animals Protective Act of 1912. The value of money has since changed without the rates of fines being raised proportionately. The cost of arms licences was also worked out on the value of money 50 years ago, and requires revision.

Individuals who hold 'crop-protection' guns are also responsible for the illicit extermination of much wild life. 'Crop-protection' guns face legislators with a special problem. The handing in of such guns after the crops are reaped presents administrative difficulties and appears to be impracticable.

Some Measures Being Adopted

The answer appears to be a simplified and up-to-date version of the wild Birds and Animals Protective Act of 1912, stripped of all verbosity and made intelligible to the layman and capable of reduction to key slogans for propaganda posters. All efforts at enforcement should be directed in realistic stages—the first attempts being to make existing sanctuaries and reserve forests proof against poaching and illicit practices and then only giving attention to other forests, waste and private lands.

It is generally accepted that no separate Wild Life Organisation is necessary and that wild life is best looked after by the Forest Department.

However, each state will have a Wild Life Board, whose main function would be to advise the Forest Department on how wild life may be best looked after. The activities of respective State Boards will be guided by the Indian Board of Wild Life. It is of paramount importance that State Boards consist of representatives of all the important sections of public opinion and contain a strong element of non-official experts, natural historians and sportsmen. Some measures which are receiving close attention are:—

(*a*) the formation of State Boards;

(*b*) the opening of national parks, nature observatories, game sanctuaries and reserved forests;

(*c*) the preparation of standard rules for the management of zoos, national parks and reserve forests and the training of Forest Officers in animal management;

(*d*) the improvement of Forest Regulations in so far as these apply to wild life preservation, to include deterrent penalties and the cancellation of licences of habitual offenders;

(*e*) the increase of power of Forest Officers to those of a Police Officer, to enable them to demand the production of gun licences and guns;

(*f*) the increase of licence fees and fines to come into line with the present-day value of money;

(*g*) the restriction of the activities of 'crop-protection' gun licence holders to the actual area of the crops;

(*h*) the production of suitable text books for School Children and an increased emphasis on wild life preservation publicity by means of the press, radio and cinema.

Conclusion

No amount of legislation can prevent the destruction of our wild life unless due respect to the problem is paid by the general public. The conservation movement at present represents a few enthusiasts, nature observers, scientists and zoologists. What is required is a mass conservation movement such as in the USA or Europe.

Our Vana Mahotsava ceremonies by corporate bodies and individuals are healthy attempts to organise the public towards taking active steps for the conservation of Indian flora. However, one cannot help noticing

how misguided enthusiasm for quick results tempts the organisers to plant inferior quick-growing ornamental trees. These will no doubt serve our generation with a gratifying sense of achievement but could never be a substitute for the solid slow-growing Banian or Peepal trees, which require to be carefully nursed for longer periods.

Planning the preservation of wild life involves both long and short term measures but invariably the results are not at once visible. These will only pay dividends to the next generation. This factor is apt to discourage individual efforts.

There should be no apprehension that shooting or hunting is inconsistent with the preservation of wild life. The aim of any national wild life board is to manage the nation's wild life on the principle of conservation with the ultimate object of utilizing wild life on a sustained annual basis.

Every individual can take an active part in a national conservation programme by:—

(*a*) strictly abiding by game laws;

(*b*) refusing to adopt or condone unsporting activities, *i.e.*, spot-light shooting, the stalking of water-holes and salt-licks, shooting from jeeps and the dynamiting of fish;

(*c*) refusing to accept netted game in season and reporting out of season transgressors;

(*d*) assisting the State Wild Life Boards by becoming active members wherever possible.

INDIVIDUAL TRAINING TWO DECADES BACK

"UNABRIDGED"

THIS happened in Quetta in 1934. I was a 'Y' cadet in QVO Madras Sappers and Miners. I had appeared for the Army Special and was recommended for admission to the IMA Dehra Dun. My commanding officer got me attached to the 4/19 Hyderabad Regiment (now 4 Kumaon) for tactical and mountain warfare training. The Battalion went to a training camp at a place known as Murdar Pahad, about 10 miles from Quetta. The training ended with a competition route march of 53 miles in one day. Many who are now Generals and Brigadiers were in that Battalion and, therefore, this article will be of particular interest to all.

I was attached to the Company commanded by Captain S.M. Shrinagesh. The Battalion was commanded by Lt. Col. Penn and the Adjutant was Captain K.S. Thimayya and there were other officers in the Battalion, many since retired and some still serving.

The training began with ordinary route marches and picketting on the hills. The country was all hostile and we had to be very careful during our training. Every day we used to go out about 10 miles carrying out Mountain Warfare training and came back in the afternoons, at about 1530 Hrs, to the camp. This we did in various stages covering the entire training programme. Every day we left our camp at first light at about 0600 Hrs. It was all part of the training up to company level. We had individual soldiers patrolling in two's and three's going up the hill as scouts and in picketting and withdrawal, and at section level—picketting while marching, withdrawal and small schemes. After that we had at platoon level—advancing, picketting and withdrawal. We had inter-platoon exercises too, such as one platoon acting as enemy, one platoon attacking a feature and another platoon withdrawing from a feature. After a fortnight's training we had inter-company exercises. As a 'Y' cadet I joined a platoon and worked throughout like any other soldier. Individual training was very hard; but when it came to inter-company exercises, the soldier had to do comparatively less hard work. It was a matter of argument

amongst Officers and painting of pictures by the commanding officer, while the soldier had one or two hills to climb or one or two nullahs to cross and take up a defensive position. At the end of the month's training we were all really very fit.

Every day, after we returned to the camp, we had tea and a good wash and got ready for the evening's Stand to at about 1800 Hrs. Before this at about 1700 Hrs. the Company Commander Captain Shrinagesh had a class for all NCOs of his Company. I also attended this. So also Lieut. Kunwar Bahadur Singh, the Company Officer and the JCOs of the Company. The Company Commander briefly reviewed that day's activities, emphasised one or two points and then explained briefly the following day's exercise. This was very useful indeed.

At the end of the month's training, the Commanding Officer Lt. Col. Penn wanted to give endurance tests to the Companies. He selected two different routes in the opposite direction from the Camp to Quetta for two Companies to march home from the Camp. These two routes were almost like two horse-shoes, lying opposite but tips touching each other at the Camp and at Quetta. The distance given on the map was 50 miles. No time limit was laid down, but the Company Commanders had to make all the necessary arrangements themselves. All ranks had to be dressed in FSMO with packs containing their great coats on their backs. One of the two Companies to go on the march was ours commanded by Captain Shrinagesh. We fell in outside the perimeter at about 0545 Hrs. on the D day. I remember the Company Commander inspecting us at about 0550 Hrs. He went round lifting everybody's water bottle to ensure those were full. As he was inspecting, Captain Thimayya, the Adjutant came to the Company Commander and told him that he (the Adjutant) would be about the place for about 5 more minutes if the Company Commander wanted him. The Company Commander said O.K. to this and carried on with his inspection. About two minutes before six he called the platoon commanders and told them that he would advance at 0600 Hrs, and at 0600 Hrs. he signalled by the waving of his hand and advanced, the company following.

The Company advanced in march formation. The Company Commander was in front of the main body and the Company Officer Lieut. Bahadur Singh was in the rear. As we marched in one direction, the other Company marched in the opposite direction. Our Company Commander's white charger was also with us, but it had a comparatively

easy time as it was not ridden. We marched quite well and quite fast because we were by now very tough, having run up and down the hills for a month and so we did not feel the strain of a long march. To start with, we had the ten minutes' hourly halts and at about 1130 Hrs. we had half an hour's halt for lunch which we carried in our haversacks. At about 1500 Hrs. we had three hours' halt. Most of us laid ourselves down on the ground tired, with our legs on higher ground so that blood might flow back from our legs to the body! A hot meal was prepared and consumed and we resumed our march at 1800 Hrs. feeling fresh and happy. At 2100 Hrs. we had an hour's halt when we prepared hot tea and then resumed the final phase of our march at 2200 Hrs., reaching home, Quetta, at 0200 Hrs.

The Battalion intelligence section personnel who accompanied us, measuring the distance, reported the total distance covered as 53 miles. A great cheer from all ranks followed. It was a great and proud achievement.

The other Company arrived in Quetta at 0800 Hrs. the following morning, *i.e.*, six hours after us. Not a single man fell out. The last phase of the march was the fastest and best of the day. It was very chilly in March at this time of the night (or early morning), and marching warmed us up so that we felt energetic. The "going was really good."

This article is written to show the nature of the individual training carried out in those days on the North West Frontier of India. It also shows the team work and team spirit and powers of endurance displayed by All Ranks of this Unit who covered 53 miles in 20 hours. It is also interesting to note that out of this 20 hours, 3 hours were spent in preparing a hot meal, half an hour for lunch, one hour for the night tea and well over two hours in 10 minute hourly halts. Therefore the actual marching time had been about 13½ hours over a distance of 53 miles which comes to 4 miles an hour. This was very good going indeed.

INDIA AND THE CRIMEAN WAR

LIEUT. COLONEL M.E.S. LAWS, O.B.E., M.C., R.A. (RETD) F.R. HIST. S.

WHEN in 1854 Britain, in alliance with France and later Sardinia, found herself assisting Turkey to resist aggression by Russia, the war was considered as essentially a European conflict. Though Russia was not at that time regarded as so menacing a threat to India as she later became, it was thought inadvisable on political grounds to allow the Indian Army to be involved directly in the struggle. Since Indian troops were not therefore in action, it has generally been assumed that the East India Company's forces took no part in the Crimean War. In fact, the Indian Army rendered very valuable services to the allied cause in a variety of ways.

The decision not to employ Indian units in the Eastern Mediterranean was taken by the British Government after several regiments—notably the 2nd, 3rd and 4th Punjab Cavalry, 4th Punjab Infantry and 3rd Sikh Local Infantry—had volunteered to serve overseas. In declining these offers of service, Lord Panmure, Secretary of State, wrote, "A Brigade of Punjab Horsemen under such an officer as Captain Jacob would be a godsend to our army in the ensuing campaign." Later however the East India Company agreed to release two British cavalry regiments (10th Hussars and 12th Lancers) from India, and these units moved via Suez and Alexandria to join Lord Raglan's army in the Crimea. Their arrival was very welcome, since the British were particularly deficient of cavalry and had suffered heavy losses in that arm. The East India Company paid for their transport to the Crimea.

In December 1854 the British War Department applied to the East India Company to permit those of its serving officers who happened to be on leave in Europe or on Half Pay to volunteer for service with the Turkish Army or with irregular units attached to the British Army. It was agreed that such officers should continue to draw their furlough or half pay from the Company and should in addition receive a step in local rank, together with greatly enhanced pay and generous allowances from the British Government. The officers were to continue to be regarded as on leave or

half pay during the period of this service in Turkey and would resume their substantive rank in the Company's service on completion.

The reason for this appeal for help from India was simply that the British Army had at that time no organised reserve system and was quite unable to produce officers required to assist the Turkish forces. The Turks needed experienced officers as leaders for their own regular forces and also to discipline and train the vast numbers of Irregular Cavalry, generally known as Bashi Bazooks. Officers from India were therefore particularly suitable as having experience of soldiering with Muslims and also of service with Irregular Cavalry.

The British Government established two military missions to serve with the Ottoman forces—one under Captain (local Major-General) P. Cannon was attached to Omar Pasha's army operating along the Danube, and the other under Major-General Williams was attached to the Turkish Army in Asia Minor at Kars.

General Cannon, himself once an officer in the East India Company's service, was assisted by Lieut. J. Ballard (Bombay Engineers) Lieut. C. Nasmyth (Bombay Artillery), Lieut. C. Hinde (Bengal Infantry) Lieut C.V. Arbuckle (Bengal Artillery), Lieut. B. Ogilvy, Lieut. Macintyre and Lieut. R. Cadell (Madras Artillery). The value to the Turkish cause of the services of these officers was beyond computation; by their gallant leadership they inspired the successful defence of the key fortress of Silistria and were largely responsible for the Russian defeat at Rustchuk. Later, General Cannon was given a Turkish Division stationed at Eupatoria, while Lieut. Ballard commanded a Chasseur Brigade and Hinde an Infantry Brigade. These two officers took a distinguished share in the Turkish expedition to Trebizond which was intended to relieve the Russian pressure on Kars.

The magnificent Turkish defence of Kars was also inspired by the small British military mission under Brigadier-General W.F. Williams. Most of this officer's small staff were provided by the East India Company's service—Major H.A. Lake (Madras Engineers), Capt. W. Olpherts (Bengal Artillery), Lieut. H.L. Thompson (Bengal Native Infantry) and Capt. Geils (Madras Native Infantry). Indeed, several others of the Company's officers volunteered for this difficult duty, but could not reach the theatre of war in time. Six other officers on leave from India served on the staff of the British Base at Scutari.

But besides service with these military missions working directly with the Turkish Army, India was called upon to provide most of the officers for two Turkish formations which were to be taken into British pay and service, namely The Turkish Contingent and the Osmanli Irregular Cavalry corps. The former was an already existing formation of all arms organised as two Cavalry Divisions each of two Brigades (total 8 regiments or 4,000 sabres), two Infantry Divisions each of two Brigades (total 16 battalions or 15,000 muskets), and 6 field batteries each of 6 guns (total 900 men). The force was supposed to be already trained and equipped: it was intended that the British should supply a small Headquarters staff with about three regimental officers to each unit, leaving Turkish officers of the rank of major and below. The Osmanli Irregular Cavalry was to be raised in British pay and service by recruiting Bashi Bazooks, the wild Turkish horsemen who had already earned a terrible reputation for savagery and pillage.

The command of the Turkish Contingent was given to Major-General R.J.H. Vivian of the Madras Army and among his Brigadiers were Colonels J.G.S. Neill (Madras), S.J. Stevens (Bombay), J.Michel and A. Shirley. All sixteen artillery officers came from India as did also twelve cavalry and forty-two infantry officers. Others were added later as the various units were collected near Constantinople and came under British control. A number of Military Surgeons from the Company's service also joined when it was realised that the Turks had virtually no medical organisation at unit level. Unfortunately owing to a variety of reasons, including shortage of shipping, it was not until mid 1855 that the corps was assembled, and then it was realised that much of the Turkish clothing and equipment would have to be replaced. Many horses had to be bought in Austria and shipped to Constantinople, and a Transport Corps organised before the Contingent was ready to take the field. To complete its training and equipment the Contingent was shipped to Kertch, but was not seriously engaged and the war came to an end before it was ready to take the field.

The command of the Osmanli Irregular Cavalry of 8 regiments each of 500 sabres was given to Lieut. Colonel W.F. Beatson of the Bengal Army. This officer had seen much service in India where he had raised and led the Bundelkund Legion and had served with the Nizam of Hyderabad's cavalry. Having taken part in the Danube campaign of 1854 and the charge of the Heavy Cavalry Brigade at Balaclava, Beatson received orders

in November of that year to raise his corps of Bashi Bazooks: he was made a Lieut. General in the Turkish Army and given local rank of Major-General in the British service, though still only a Lieut. Colonel in the Company's Bengal force. He was assisted by several of the East India Company's officers and soon succeeded in recruiting his 4000 tribesmen from Albania, Syria, Roumelia and the provinces of Asia Minor. When however, the men reached the depot at the Dardanelles, there was considerable trouble, and complaints of armed robbery, pillage and murder poured into the British Embassy. The trouble was that Beatson had no proper staff and too few European officers at Headquarters to control the Bashi Bazooks, who provided their own arms and horses. Eventually the force was placed under the command of the Turkish Contingent and moved to Shumla in Bulgaria where it rapidly improved in discipline under a new commander, Lieut. Colonel E.Watt of the Company's Madras Army. The corps, which also included 4 Troops of Horse Artillery, partly British in composition, was not fully trained by the time the war ended.

It will be seen therefore that though the officers attached to the military missions with the Turkish armies saw much hard fighting, the larger number serving with the Turkish Contingent and the Bashi Bazooks were not actively engaged, except for General Beatson and three or four of his staff who fought as volunteers in the Crimea with British units. Yet the value of their services was great and would have become obvious had the war continued, for the Turkish Contingent and the Osmanli Irregular Cavalry were destined to be the only reinforcements for the Crimean army immediately available for the expected 1856 campaign. The officers from India were indeed the only trained soldiers fitted to lead the Turkish troops in British pay, for Britain was hard put to it to find replacements for her heavy officer casualties in the Crimea and had none to spare for auxiliary forces. It will be seen therefore that the Indian Army indirectly played a considerable part in the Crimean War and gained considerable military prestige from the operations in the Danube and in Asia Minor.

GERMAN MILITARY INTELLIGENCE

PAUL LEVERKUEHN

Praeger, New York, 12/-

Translated from the original German, this is an authoritative account of the Abwehr Branch of the German Military Intelligence Service. The Abwehr was the German Counter-Espionage Section.

Although much of the history of the Abwehr Service is contained in captured files taken to Washington by the Americans, much of its significant activity would obviously find no place in official files. The spirit of the Abwehr survives in the memories of those who served in it. The author is one of them. In this book he has sought to give a spirit to the dead bones of the captured files; for this task he is quite competent.

He was Chief of Istanbul Station and the Near East War Organization. He knew Admiral Canaris well. He was also defending counsel for Field Marshal von Manstein during the Nuremberg trials. Thus he came to be acquainted with the problems of the German High Command and this gave him a proper evaluation of the Abwehr Service in the German war organisation.

Books dealing with secret agents are usually fascinating. This one provides both interest and information. The intrigues of the Mufti of Jerusalem and Rashid Ali the Prime Minister of Iraq are described and how the latter was smuggled out of Turkey. There are anecdotes of mystery and adventure, the activities of Klatt one of the best secret agents of World War II who supplied information about Russia to Germany some of which was completely sensational; the story of Captain Nissen who landed agents in enemy territory and who sailed more than 14,000 miles in a 34 ton vessel on one occasion to do so. Here we have the intelligence picture from the espionage point of view of all the theatres of war in which Germany was engaged.

The author has presented with clarity the organization and functions of the different sections of German intelligence, the relationship of intelligence to the war machinery and the feud between the Gestapo and

the Abwehr. He has also given his views on the uses and limitations of propaganda and sabotage.

Of interest to the Indian reader is an account of the activities of Subhas Chandra Bose and the Indian Legion in Germany. In the author's view Bose was a true Indian patriot with but one idea, who was prepared to do nothing simply for Germany's sake, but anything and everything, including the harnessing of German interests, for India. Also significant is the statement of Bose to Canaris in 1942: "You know as well as I do that Germany cannot win this war. But this time victorious Britain will lose India."

It is fitting that the book should conclude with a chapter on Admiral Canaris, the man who built up the Abwehr organization.

J. N.

ATOMIC WEAPONS AND ARMIES

F. O. MIKSCHE

Faber & Faber, London, 25/-

The large-scale production of atomic weapons and their adaptation to tactical and strategical uses on the battlefield has raised many crises in military thought. Studies have been made in large-scale manoeuvres in the USSR and NATO (Exercise Battle Royal) as well as this year's annual CIGS Conference in the UK. In his book, Miksche—one of the world's leading military writers, whose reputation was founded by his contribution to thought on the potentiality of guerrilla warfare—examines the impact of A weapons on existing military organisations, tactics and strategy.

In a somewhat lengthy introduction, the author analyses the conditions under which the two World Wars were fought and presents an impression of the effect on the German offensive in France in 1940 of atomic weapons and properly used air forces in the hands of the Allies. This, of course, is hypothetical but stimulates thought for the main part of the book in which warfare with atoms is studied. One would have to look quite a long way ahead to predict the introduction of A weapons into India's armed Services, but this does not imply that our organisations will not have to be changed in the meantime. Obviously defensive measures

assume all the greater importance in the absence of a full retaliatory armament of one's own. Some of the issues raised by Miksche are, the need for smaller formations; a more flexible logistical organisation; the increased importance of the light Infantry tradition; a new Artillery set-up and various aspects of Civil Defence, Military Government and the value of guerrilla 'seepage' into enemy held areas where the enemy would be unable to use A weapons for fear of damaging his own installations.

This book is an important military publication to be read by all who desire to know the shape of things to come.

M. R. P. V.

AIR WAR AGAINST GERMANY AND ITALY 1939—1943

JOHN HERINGTON

With illustrations and maps

Australian War Memorial, Canberra, 25/-

The Air history of Australia in the War of 1939-1945 will be published in four volumes. This the third volume in the planned series, has been published first and narrates the Australian contribution to the air war against Germany and Italy during the first four years of the war.

Very few completely Australian units were available in England at the outbreak of the war and later on even when more men became available they rarely formed an Australian unit. They got posted to various RAF units to make up their numbers. This system had basic weaknesses and though in a united fight individualities should merge in larger groups, Dominion countries always tried to retain their homogeneous units. Their efforts did not yield much. Even late in 1943 what they achieved was merely the identification of Dominion personnel by their nationality and service numbers.

The task of historians generally is complex enough but it becomes very much more exacting when the nation concerned has had no say in matters of strategy and tactics; it possessed no units larger than squadrons;

its men formed a very small part of the total force engaged against the enemy. The author of this volume therefore claims the purport of his efforts to be "not to tell the complete history of air warfare in Europe and the Middle East but only why, when, where and in what degree Australian airmen were involved in such warfare."

Being a history of the Australian war effort emphasis has been laid on Australian exploits but the overall picture has been presented all along so that the smallness of the Australian contribution is not lost sight of. In the words of the historian "the RAAF contribution was isolated and episodic." He has himself been an operational pilot, an instructor and a staff officer before commencing historical research.

Starting with the internal conflict at the outbreak of the War, one reads of the air aspect of the Battle of Britain, the Lybian Campaigns and those in Greece, Syria and the desert. Next comes the Empire Air Scheme which was evolved to meet the sudden expansion in 1940. In it various Dominion forces were involved which gave rise to fresh administrative problems. These were further aggravated by the Australians being in two minds when Japan attacked in the East. While the Government wanted purely Australian units, the air crew individually thought otherwise.

In subsequent chapters one reads of the development of fighter squadrons and the air offensive at sea; the activities of the bomber command and experiments in bombing technique, the lack of firm policy in relation to strategic bombing which produced eleven directives in thirteen months.

Dealing with the crisis in the Atlantic, the "U" boat campaign launched by the enemy, the initial lack of suitable radar on the allied side and the subsequent total surprise caused by the invention of "H2S" are clearly brought out. In the chapter on the Radar Bombing offensive there are numerous tables to show the units participating in each raid and results achieved—overall as well as by the Australians within them.

A complete chapter has been devoted to "National Aspirations." The whole problem has been discussed with a bias on what should happen in a future war.

G.S.W.

A HISTORY OF SOUTH INDIA

K. A Nilakanta Sastri

With illustrations and maps

Oxford University Press, Rs. 12/-

South India includes all the territory lying to the south of the Vindhyas. The western part of it is inhabited by the Marathas speaking the language of the Indo-Aryan group. Elsewhere the people speak languages belonging to the Dravidian stock of which Tamil is the oldest. This region has occupied a very important position in the history of India. It was the oldest centre of Indian maritime activities. The traders and merchants of South India maintained their direct contact across the Arabian Sea with the countries surrounding the Persian Gulf and the Red Sea and across the Indian Ocean with Indonesia, the Philippines, Burma, Malaya, Thailand, Indo-China and China. Thus Indian commodities freely poured into these countries as well as into Egypt, the Roman Empire and the Middle East.

South India also served as a base for the colonial and cultural activities of the Aryans. It was from here that the Aryans carried the torch of their civilization and culture into Ceylon and South-East Asia. A Chinese Embassy was established at Kanchi in the second century before Christ, and a Chinese coin of this date was discovered at Chandravalli in Mysore State. Chinese records also reveal the exchange of embassies between China and the Pallava Kings of Kanchi in the eighth century and the Chola kings in the eleventh century. It is also recorded that the great Mongol Emperor Kublai Khan had established diplomatic relations with several of the South Indian States.

There is no denying the fact that the Sanskrit language and literature received great consideration in this land. The Ramayana and Mahabharata were translated into various languages of the South by eminent poets and scholars. The Buddhist art received vast patronage, and attained superb forms in elegance, beauty and design. This found expression in the inspiring art of Ajanta. The South also produced among others the two most notable philosophers and preachers—Kumarila and Shankara—who deeply impressed Indian thought both in the South and in the North. Some of the best monuments of Indian architecture and sculpture are found at Conjeevaram, Mahabalipuram and Tanjore.

About the beginning of the fourteenth century the Delhi Sultans swooped down upon this land first for the sake of plunder and then for

spreading Islam and extending territories. The Hindu civilization and culture thus appeared to be in peril, but the crisis was averted owing to the long distance from the imperial capital, mutual discord of the conquerors and the spirit of resistance of the people. This eventually led to the foundation of one Muslim and another a Hindu kingdom, and their ultimate absorption in the Mughal Empire.

The history of South India forms an integral part of Indian history, but strangely enough the historians have concentrated their attention on the North only, giving the South a mere secondary position. This deficiency has been considerably made up by the publication of this book. The learned writer who occupies a unique position among the historians of the ancient period of Indian history, has condensed the results of the latest researches and archaeological discoveries in less than 500 pages, while giving a connected history of the South from the earliest times to the fall of the Vijaynagar Empire. The author has presented established facts without thrusting his own views on the minds of the readers. Each chapter is followed by a select bibliography for further reading, and there are several maps and illustrations. A number of factual and spelling mistakes have crept in, but the errata attached clarifies them to a large extent. The book is undoubtedly the best contribution on the subject, and no serious student of Indian history should do without it.

H.R.G.

BRITAIN

AN OFFICIAL HANDBOOK

1955 EDITION

Prepared by the

Central Office of Information, London

A new extensively revised edition of this publication, with some excellent photographs and maps, is on sale this year. The handbook is a compendium of information, drawn from official and authoritative sources, on the basic facts about Britain—its people and its institutions. Separate chapters deal with Government and Administration, Defence, National Economy, Industry, Transport and Communications, Finance, Social Welfare, etc. The book includes a bibliography on the aspects of British life it covers and is fully indexed. It is a valuable reference work for teachers, students, writers, business men and leaders of public life. (Copies can be had from British Information Services, Eastern House, Mansingh Road, New Delhi. Price Rs. 4/8 paper cover or Rs. 7/8 cloth-bound)

OBITUARY

LATE LIEUTENANT GENERAL W.D.A. LENTAIGNE

COMMANDER P. VASUDEVA, I.N.

The country and particularly the services have suffered a grievous loss in the demise in June of Lieutenant General W.D.A. Lentaigne, CB, CBE, DSO, till recently the Commandant of Defence Services Staff College at Wellington. For nearly eight years he worked to build up this institution which had to find a new home after the loss of Quetta. It is as a result of his efforts, initiative, resourcefulness and vision that this new venture of a joint institution for the three services has been such an outstanding success, and Staff College, Wellington, ranks among the best in the world today.

To those of us who have had the privilege of being students of this college during his time as commandant and had the opportunity of knowing him, the death of this brilliant man is a great personal loss. His vast knowledge of all the three services, his eye for detail and his extraordinary capacity for assimiliation and digestion of everything he read or saw was something unbelievable. His luminous lectures to the courses every year, his summing up of a campaign and his capacity to marshal facts and present the salient features and lessons of a particular military operation convinced one that he had the mastery of every subject he dealt with. He had achieved perfection in what they so assiduously teach at the Staff College in the Public speaking series—the power to dominate the audience—and there was always pin-drop silence whenever he addressed us, no matter how long the address lasted. One was simply amazed at his vast and varied knowledge and his mastery of detail of practically every subject connected with the art of warfare.

Apart from being an efficient staff officer, he was a distinguished leader of men and a renowned soldier. His successes at Chindit in the last war bear testimony to his achievements on the battle-field. Though normally of a serious disposition, he was very lively in social discourse and had the knack of feeling young with new batches of young officers who came to the Staff College every year. His attempt to play "chef d'orches-

tre" on dance nights at the Wellington Club was a familiar sight to all of us and he could be the life of an evening on such occasions.

He had a prodigious memory and within a month of the commencement of a course he knew the name of practically every officer. He was a voracious reader and in the library of the college, which has thousands of volumes, there was hardly a book which he had not read or glanced through, but what is more remarkable about him is that he knew how to impart his vast fund of knowledge to the successive lots of officers who came up every year.

It is really sad that he should have been taken away from us so soon after his mission at the Staff College was ended, and that fates gave him no time to ruminate over the edifice that he had erected at Wellington and to enjoy a well earned rest.

TANK VERSUS TANK BATTLE

MAJOR V.P. NAIB

A.C. Centre and School,
Ahmednagar

Reference Major A.K. Nayyar's letter in the correspondence column of the January 1955 issue of the USI Journal.

As the above article is the second of a series of three* articles on the employment of armour, I expected the subject to generate considerable controversy. Consequently I was very pleased when I came across Major Nayyar's letter. After reading through it, however, I felt that in regard to the role of armour and the burden of my theme, the writer was "off-net," to use an expression with which I am sure he is quite familiar. As I have been misquoted, I must request him to re-read the article both to correct certain wrong impressions and to appreciate my explanations in this letter on the three issues he has raised, viz, tank-destroying teams, the principal role of armour, and the effect of artillery fire on armour.

Tank-destroying Teams

The expression "tank-destroying team" is a generic team emphasising the aspect of team work amongst the fighting arms and not used to

* i.e. " Close Support ", " Tank Versus Tank Battle " and " Striking Force "

denote any particular organisation. Its composition will depend entirely on the size of the force operating in any sector and the nature of operations. In modern war, of which tank destruction is an important feature, battles are won by the integration of armour, infantry, artillery and air and not by any one arm. An exaggerated sense of corps loyalty should not distract a soldier from obtaining a proper perspective and from appreciating his part as a member of the team.

Nowhere in the article have I stated that the tank is not a part of this tank-destroying team. It is an essential part of it and has quite a few tasks to perform including tank destruction. Although I have discussed the subject under the various operations of war, Major Nayyar has chosen a passage from my observation under defence, and treated it as a general principle without regard to its context for the purposes of his comments. Although unassailable even as a general principle, it is apt to present a distorted picture and liable to be misunderstood, as Major Nayyar obviously has. I therefore once again invite his attention to my observations on the other operations of war as well and the conclusion in the above article. Even in defence, I do not understand his reluctance to meet a tired enemy tank force, nor his objections against the soundness of the defensive battle I have described with particular reference to tank destruction. The aim of all operations in war is to get the enemy at a disadvantage and hit him hardest when he is weakest. In defence, from the point of view of tank destruction, the best time to commit our tanks is to attack enemy armour after its momentum has been slowed down by our system of strong points and after the enemy tanks have suffered casualties and expended much of their ammunition. I do hope that Major Nayyar is not thinking of a tank versus tank battle in front of our defensive positions and committing our limited tank force against an attacking enemy tank force which is numerically superior.

Role of Armour

The burden of my theme in the three articles mentioned above is the application of western tactical concepts to Indian conditions, with particular reference to our lack of industrial resources and our limited tank strength. If we could produce tanks like the United States of America, perhaps we could make tanks ubiquitous on the battle-field, decentralising them down to rifles companies. Because of our limited resources, we have to think of the ways and means of conserving our tank strength so that we can use it concentrated at the time and place of decision.

In regard to the role of armour, I do not agree with Major Nayyar when he says "one of the principal roles of armour is to seek and destroy enemy armour besides assisting infantry....." I have discussed the origin and fallacy of this concept at length in my article. Besides what I have already stated I would like to point out that no arm can have a multiplicity of principal roles because this will affect adversely its composition, organisation, training and battle efficiency. It can have only one principal role and one or more secondary roles. Ever since Horsed Cavalry committed 'hara-kiri' at the Battle of Cambrai, armour has steadily moved on from its traditional role of infantry support to an independent mobile role which includes the historic role of cavalry—the pursuit. The "truly mobile role," to use an official expression, brings out best the dynamism of this arm and it is in this role that its potentialities can be exploited to the fullest extent. "Seeking out and destroying enemy tanks" could at best be described as one of the tasks of armour, though it is considered by many of the leading thinkers of mobile warfare as misuse of armour. It cannot, however, be elevated to the level of "a principal role of armour." With our limited resources in armour we will never be in a position to seek out and destroy enemy armour by means of our armour alone, unless we are fighting against a country whose armoured strength is weaker than ours.

Instead of having three different types of AFVs for three different purposes—the mobile role of the armoured division, the infantry support role of heavier tanks and the reconnaissance role of the light tanks in the infantry divisions—we are now faced with the choice of selecting an all purpose tank or a tank that is best suited for the most important of the three functions mentioned above. I use the expression "all purpose tank" advisedly, because, as the United States of America and the United Kingdom have done, we may also consider the Armoured Corps taking over anti-tank defence—though not in the sense of tank versus tank battle which Major Nayyar appears to imagine. As I have argued in my article "Striking Force,"* from all points of view, we fulfil our mission best by selecting the tank suited for the most important role, the principal mobile role, and training for it. All other roles are subordinate to this overriding consideration and only undertaken, when armour is free and available to undertake them without prejudice to its principal role.

* USI Journal, April 1955

Effect of Artillery Fire

As this letter has already covered much ground I shall not dwell at length on the effect of artillery fire and the characteristics of other anti-tank weapons. I shall only point out that the way Major Nayyar visualises the employment of these weapons is contrary to everything that an anti-tank gunner is taught to do and has actually done in battle. I am sure the anti-tank gunners will have a lot more to say about this than I have done. When Major Nayyar talks about recoilless guns having short ranges and being inaccurate, he is still thinking of the bazookas that obtained at the end of World War II. Since then, many other weapons have made their appearance and the latest is the American BAT (Battalion Anti-tank Weapon), which can go through the heaviest armour at over 1000 yards. These developments have largely eliminated the shortcomings of the recoilless weapons of the 1945 vintage by the use of flashless propellants, rifled barrels and other improvements designed to increase the accuracy of these weapons. The greater weight of the propellant charges of the projectiles, which Major Nayyar has commented on, is the very reason why they are used as anti-tank weapons, where the ammunition expenditure is very limited, and not as conventional field artillery, which would pose extremely difficult problems in the matter of ammunition supply.

In regard to the effect of indirect artillery fire and the tremendous destructive effect of anti-tank guns when handled intelligently and courageously, I refer Major Nayyar to the Battle of Medenine which has been described as a Gunner's Battle when they crippled Rommel's armoured offensive from Tunisia so effectively that he never could undertake any more offensives, even of a limited nature, against the Eighth Army. In passing, I must point out that the aim of indirect artillery fire is not knocking out tanks by direct hits. As it happened in the Battle of Medenine, indirect fire causes tanks to close their hatches, makes their visibility restricted, causes damage to tracks and other vulnerable parts of the tank and thus effectively cramps their style so that anti-tank guns or our own tanks can knock them out easily in their state of disorganisation.

INDIAN MILITARY HISTORY

DR. BISHESHWAR PRASAD, D. LITT

Director, Historical Section, Ministry of Defence, New Delhi

I have been greatly interested in your Journal and have read with great interest and profit a number of your articles on the science of war. But I have failed to find any paper on the subject of Indian Military History. I am not surprised that it is so because most of us have not been giving any attention to this subject in our studies. I wonder if your Institution could possibly encourage the study of this subject. One of the ways will be that you might ask for papers on the subject of Indian Military History, or even give some prizes for the production of some suitable research papers. I hope you will kindly give thought to this matter and do something to retrieve the study of this neglected subject.

We are glad to publish this letter and await readers' responses—*Ed.*

SECRETARY'S NOTES

Lectures and Discussions

The following lectures were held :—

"Indo-China", by Mr. M. J. Desai, ICS	14th July 1955
"Planning in India", by Professor P.C. Mahalanobis, FRS	27th July 1955
"Supervisory Training throughout the World with special reference to India", by Mr. S.R. Pearson (ILO Expert)	3rd August 1955
"Current Affairs", by Mr. K.M. Panikkar	15th September 1955

Library

In spite of the increases in postal rates in recent years books are issued to members anywhere in India postage paid one way. We would request the co-operation of borrowers in eliminating avoidable postage by returning books in time without waiting for reminders.

The Library Catalogue is available for sale at Rs. 6 plus postage.

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Corresponding Member

Lieut-Colonel M.R. Dutt, M.C., is the new Corresponding Member of the Institution at the Military College, Dehra Dun.

Changes of Address

Members are requested to notify any changes of address to the Secretary's Office. Please make use of the printed form given elsewhere in this issue.

The Journal

According to the printing programme for the year the Journals for each quarter have been appearing towards the end of the quarter. For this reason the July issue for the third quarter has been shown as the July-September issue, to be followed by the October-December number.

New Members

From 1st April to 30th June 1955 the following members joined the Institution :—

ABRAHAM, 2/Lieut. G.
AHLUWALIA, Captain G.S.
AJMER SINGH DHANDA, Major, Skinner's Horse.
ALAMJIT SINGH GREWAL, Captain.
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YUDHBIR SING PANWAR, Lieut.-Colonel, The Garhwal Rifles.

SUBSCRIBING MEMBERS

Eleven Officers' Messes and Units were enrolled as subscribing members during this period.

Essay Entries

Seventeen entries with the following mottoes were received for the Gold Medal Essay Competition 1955 :—

1. 'Say not the struggle naught availeth' 2. 'Ready aye Ready' 3. 'Through night and blood to light' 4. 'As a man thinketh, so is he' 5. 'Unity and harmony' 6. 'Unity is Strength' 7. 'Il faut reculer pour mieux sauter' 8. 'No one can guarantee success in war, but only deserve it' 9. 'Pre-vision is pro-vision' 10. 'Tactless' 11. 'Forewarned is forearmed' 12. 'Spahi' 13. 'The multitude which does not reduce itself to unity is confusion ; the unity which does not depend upon the multitude is tyranny' 14. 'Behold how good and how pleasant it is for brethren to dwell together in unity' 15. 'Homogeneity as a factor for victory' 16. 'Scientific progress and industrial capacity alone will in time to come decide the very fate of the human race' 17. 'Lead kindly light'.

It is hoped to inform the successful competitors in October. Their names will be published in the Journal for the last quarter.

CHANGE OF ADDRESS

Date.....

To,

Secretary,
United Service Institution of India,
Kashmir House, New Delhi.

Please note my new address.

Name (in block caps).....

Rank and unit.....

Permanent address.....

Present address.....

Signature.....

INDEX TO ADVERTISERS

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Secretary, United Service Institution of India, Kashmir House, New Delhi.

Please enrol me as a member (or life member) of the United Service Institution of India.

Name (in block caps.).....

Rank and unit.....

Permanent address.....

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Date.....Signature.....

Printed by the National Printing Works, 10, Darya Ganj, Delhi, and Published by K.V. Cherian, for the United Service Institution of India, Kashmir House, New Delhi.